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CUSTOMER SERVICE ORIENTATION OF INSTITUTES OF HIGHER LEARNING IN SOUTH AFRICA: A CASE STUDY OF UNIVERSITIES OF TECHNOLOGY

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Abstract

The purpose of the study was to investigate the customer service orientation of institutes of higher learning in South Africa, with specific reference to Universities of Technology in KwaZulu–Natal (KZN). As an exploratory study, the research aimed at understanding how various factors, of customer service orientation of institutes of higher learning, affected the perceived service quality provided to students. This quantitative survey was conducted among the universities' students, located in the province of KwaZulu–Natal, South Africa. A cross-sectional survey design was used to assess university of Technology students' perceptions of customer service orientation, by means of a 5-point Likert scale questionnaire. A total of 110 questionnaires were analysed. Findings indicated that, most university of Technology students either agreed or were neutral regarding the customer service orientation they received in their respective universities of Technology, with above average, overall mean scores. The important factors that determined the customer service orientation of universities of Technology in South Africa were facilities, academic staff attendance during lecturing periods, administration of other activities relevant to the students, equal research funding accessibility, as well as ethical behaviour and professionalism of academic staff. The managerial implication is that measuring the customer service orientation of the universities of technology, to prioritize those factors identified as important by the students, for effective management of customer service. Providing good customer services across the universities is critical in gaining a competitive edge in the education sector.

Keywords: Service Orientation, Institutes, Higher Learning, Universities of Technology, Customer Service

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1. Introduction

It has been noticed that service quality spreads from business to education, as many higher education institutions have been stimulated and influenced by service quality, both for teaching and administrative support functions (Zeithaml, Bitner & Glemler, 2009). Focusing on the customer is an essential principle of service quality, and customers for the service of a higher education institution fall into five groups, students, employees, government and the public sector, and the industry and wider community (Martensen, Gronholdt, Elkildsen & Kristensen, 2000). Current literature, pertaining to service quality in the higher education sector is significantly undeveloped, as many researchers focus efforts on commercial services (Sultan & Wong, 2010). Oldfield & Baron (2000) stress that institutions operating in the higher education sector, previously not regarded as profit-making organisations, and are attempting to gain a competitive advantage over their rivals. As a result of this, universities must consider themselves as profit–making organisations that operate in a competitive market place.

The institutions of higher learning in South Africa are faced with many challenges, such as increased competition, lack of support from key constituencies, an increase in the size and diversity of the student population, and dealing with changing technology. In addition, there are increased calls for accountability, a higher demand for quality by all the stakeholders involved, more responsibility for research and teaching, and greater emphasis on efficient and effective management (Van Schalkwyk, 2011). Considering the competitive environment, there is a need for institutions to plan strategies that will differentiate them from each other. This can be achieved through the delivery of exceptional service quality (Kheng, Mahamad, Ramayah & Mosahab, 2010). In today's competitive world, institutions put customers at the centre of their attention, and their loyalty is the key to earn competitive advantage for institutions (Molaee, Ansar & Teimour, 2013).

2. Statement of the research problem

The increase in the dropout rate and low throughput rate, at both public and private institutions of higher learning in South Africa, are a big concern among local nationals and has created interest among scholarly researchers. There are many questions that require answers, with regard to the quality of service that students receive at the universities, as many stakeholders do not understand customer service orientation of South African Universities. The quality of service provided by the Universities of Technology are still unknown and surrounded by many assumptions, which attribute the high student dropout rate from the Universities of Technology, to the poor quality of customer services. This problem statement is supported by many researchers, which may be an indication that high dropout and low throughput rates could be caused by poor service quality provided by the institutions of higher learning in South Africa (Malele, 2011; Letseka & Maile, 2008). Murdoch (2013) echoes the sentiment in a study that shows only 15% of South African university students' graduate.

3. Aim and Objectives

Aim: The main aim of the study was to assess and evaluate the level of customer service orientation at institutions of higher learning in South Africa, using the case study of a University of Technology, and to establish to what extent it exists.

Objectives

• To examine the level of customer service orientation of institutions of higher learning in South Africa;
• To determine students' attitudes towards the quality of customer service provided by institutions of higher learning in South Africa; and
• To determine what action students believe the institutions should take to improve customer service orientation.

4. Literature review

This section outline the literature review used to formulate the questionnaire for this survey and to determine the critical variables for this study.

Service quality in South African institutions of higher learning: Service quality and customer satisfaction are global issues that affect all organisations, whether large or small, profit or non–profit, global or local (Yap & Kew, 2007). It has been observed that there is a significant association found between all the service quality factors and customer satisfaction, as well as with customer loyalty (Anand & Selvaraj, 2012). Success of a service provider depends on a high quality relationship with customers

(Panda, 2003), which determines customer satisfaction and loyalty (Jones, 2002 as cited by Lymperopoulos, Chaniotakis & Soureli, 2006). Literature indicates that higher education in South Africa is experiencing unrelenting pressure to expand access opportunities to learners, while at the same time improving present educational quality, without prospects of funding possibilities. The sector is faced with many difficulties, such as overcrowded lecture rooms, unsatisfied and outdated curricula, and poor learning facilities (Froneman, 2002).

Customer Service in Higher Education: The primary customers of the institution of higher learning are the students (Wallace, 1999). This means that, without students to teach, there is neither business for higher institutions nor service to provide. Robert (2013) indicate that Universities and colleges now recognize that the cost of education, coupled with busy lifestyles, mean it is necessary to become far more customer-centric in terms of learning delivery methods and an understanding that they are competing for students. Wiese, et al. (2010) show that globally, as well as in South Africa, both the non-profit sector and higher education are undergoing a period of change and increased competition. The higher education environment is experiencing significant changes, and the focus is moving to competitiveness and customer care (Liebenberg & Barnes, 2004). Boyd (2012) argues that higher education has focused less on the process of good customer service and more on the final product of producing educated graduates. With an ever-growing assortment of educational options, students seek institutions that will provide them with a unique educational experience that they will remember for a lifetime. In addition, the present student is a customer seeking an educational programme that will prepare him/her for a successful career and gainful employment (Asaduzzaman, Hossain & Rahman, 2013).

Students as customers for the University: The service quality of education in business institutes/universities is of immense importance especially it matters due to increase in the competition between the business institutes/universities (Kimani, Kagira & Kendi, 2011). Universities should become more student orientated rather than more customer service oriented (Justin, 2007). According to Finney & Finney (2010), students who perceive themselves as customers are more likely to feel entitled to and view complaining as beneficial. Satisfaction with their university, but not their perceptions of themselves as university customers, predicts educational involvement.

Student perceived service quality at the university: The perceived service quality dimensions that contribute most towards the overall perceived service quality of a university, are that of facilities (Sumaedi, Bakti & Metasari, 2012). The important dimensions or factors that determine service quality in

the universities are administrative quality, academic quality, programme quality, student support, and availability of resources (Kimani, Kagira & Kendi, 2011). A comparison of perceptions of service quality, between first and final year students, suggests that perceptions of service quality elements change over a period of study (Oldfield & Baron, 2000). However, as universities become more student orientated, student perceptions of higher educational facilities and customer service orientation are becoming more important (Arpin, 2007).

Student satisfaction: Consumer satisfaction and service quality continue to attract the attention of researchers and practitioners in a wide variety of disciplines (Athiyaman, 1997). It is believed that student satisfaction is an important qualitative indicator for higher educational institutes (Khosravia, Poushaneh, Roozegara & Sohrabifard, 2012). In addition, it has been noticed that in many countries, the globalization of higher education has led to an increased climate of competition and has modified the way universities face the market (Carvalho & Mota, 2010). Service quality attributes, such as instruction, capstone experience, academic advising, overall college experience and preparation for career, are mentioned as having a significant impact on students' satisfaction at the universities (Tessema, Ready & Yu, 2012). Manzoor (2013) indicates that both sports and transportation facilities have a significant effect on the satisfaction of students in the universities, while accommodation facilities do not have any significant effect on the satisfaction of the students.

Student satisfaction and Service quality attributes: It has been found that service quality determinants as reliability, responsiveness, competence, tangibility and communication are significant of service quality for the business institutes/Universities (Imran, Ahmed, Husaain, & Ahmed, 2011). However, Gibson (2010) classifies the identified antecedents of satisfaction across different factors:

- Academic staff/teaching – this means the quality of instruction, expertise and interest in the subject, degree of caring, helpfulness, accessibility, and feedback provided;
- Classes/curriculum - which include overall design and delivery, usefulness, scheduling, content, availability, class size/logistics, and level of difficulty;
- Advising support – consisting of accessibility, reliability, professionalism, helpfulness, responsiveness, and understanding;

- Skills developed by students – relationship skills, critical thinking, intellectual growth and social/moral awareness;
- Preparation for future – preparation for or furthering of a career and expecting a good job/quality of life;
- Services/facilities – opportunities to socialize, campus safety, a sense of belonging, enjoyable experiences and diversity of the student body;
- Student centredness/responsiveness to student concerns/suggestions, helpfulness, academic support and financial aid; and
- Pre-enrolment factors – accuracy of information provided, first, second, and third choice, admissions and orientation, and degree to which expectations are met.

5. Research Methodology

A quantitative survey method was utilised to collect primary data. A questionnaire was designed and pre–tested, in order to obtain the necessary information. The data were collected through a closed ended, self–administered questionnaire, in which a number of alternative answers are provided for respondents to choose from. In the case of this study, the sampling frame consisted of students from six faculties, namely Applied Sciences, Management Science, Art and Design, Engineering and the Built Environment, Accounting and Informatics, Health and Science, as well as from the Business studies unit.. A non-probability sampling method was used to select 110 respondents from Durban University of Technology (DUT) students.

Questionnaire design: The questionnaire consisted of closed–ended questions, in which respondents were asked to make one or more choices from a list of possible responses in addition to a rating scale, where respondents were given a continuum of labelled categories that represented a range of responses. The questions were designed in a manner that elicited answers to the objectives of the study. A Likert scale was used to structure some of the questions, as Likert scales are easy to code and analyse. Clear and simple words were used to construct the questions, in an effort to make them easier to understand and answer. The questionnaire consisted of questions developed from reviewing relevant literature on this research area. Key questions are summarised in Table 1.

Table 1. Summary of key questions

Research area	Question
Gender of participants	Please indicate your gender *Response alternatives:* Female; Male
Age of participants	Please indicate your age *Response alternatives:* age 15-21; age 22-31; age32-45; age 46+
Faculty/study registered under	Please indicate Faculty/study registered under *Response alternatives:*
Level of study of participants	Please indicate your level of study *Response alternatives:* 1st year; 2nd year; 3rd year; B-Tech; Post-Graduate
Academic challenges at University	Studying at University of Technology is academically challenging *Response alternatives:* 5 point Likert scale
Student's responsibilities at the University	Studying at University of Technology encompasses too many responsibilities *Response alternatives:* 5 point Likert scale
Sufficient time to do other things	There is sufficient time to: Relax, study, do homework and socialise *Response alternatives:* 5 point Likert scale
Facilities availability at the University	Facilities at the University of Technology are good and enough for all students *Response alternatives:* 5 point Likert scale
University administration	Good administration of other activities and services, such as receiving results on time, fee updates on time *Response alternatives:* 5 point Likert scale
Qualifications of academic staff and competency	Academic staff, including lecturers, are highly qualified and competent *Response alternatives*: 5 point Likert scale
Academic staff professionalism and ethical	Academic staff are more ethical and professional *Response alternatives:* 5 point Likert scale
Academic staff attendance of lectures	Academic staff are always on time for lectures *Response alternatives:* 5 point Likert scale
University programmes structured	Programmes structured very well and adequate *Response alternatives:* 5 point Likert scale
Research Funding availability	Research funding and other relevant financial assistance are made available for all students *Response alternatives*: 5 point Likert scale
University pass rate	Pass rate at the University of Technology is good in all faculties *Response alternatives*: 5 point Likert scale
Stipulated time for university programmes	Study period is adequate for the students to finish their studies in the stipulated time *Response alternatives:* 5 point Likert scale

Data analysis: The data were coded and edited to reduce errors, thus making it easier to capture the data into the SPSS computer package. The questionnaires were counted and re–counted to ensure that all respondents had answered and completed the questions satisfactorily. The data capture was double–checked in order to ensure there were no capturing errors.

Frequencies: Frequencies were used to determine the number of responses that each question received, and were also used to crosscheck the coding of the data. The information gathered from the frequencies thus allowed for a comparison between faculties, ages, gender, and year of study.

Chi–Square Tests: A Chi–square test was conducted, to measure the extent to which the observed and expected frequencies differ. In this study, it was used to identify variables that were strongly associated with the dependent variables.

Validity and reliability: The questionnaire was assessed by the researcher and statistical experts and by pre–testing it with a small sample similar to the population, to determine content and construct for this study. No significant changes were required. Cronbach's coefficient alpha was tested, to determine a coefficient of 0.75, and the results indicate that the reliability of the study was acceptable.

6. Research Findings

This section provides a detailed analysis of the findings and interpretation of the results. The analysis entails the use of descriptive statistics analysis, in the form of frequencies, and bi-variate analysis, in the form of Chi–Square tests. The descriptive statistics, i.e. frequencies and percentages, provide an initial, general overview of the results and are illustrated by means of bar charts. Chi–Square tests were used to confirm the reliability of the results. Some information is presented in the form of graphs extracted from Microsoft Excel, to clarify the findings.
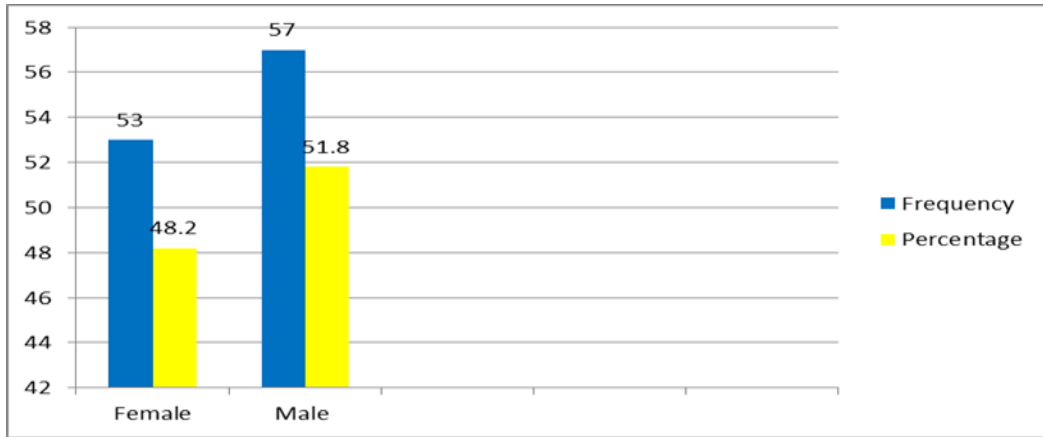
Figure 1. Gender of respondents

With regard to Figure 1, out of the 110 questionnaires distributed, the results indicate that 53 (48.2%) of the respondents were female and 57 (51.8%) were male.
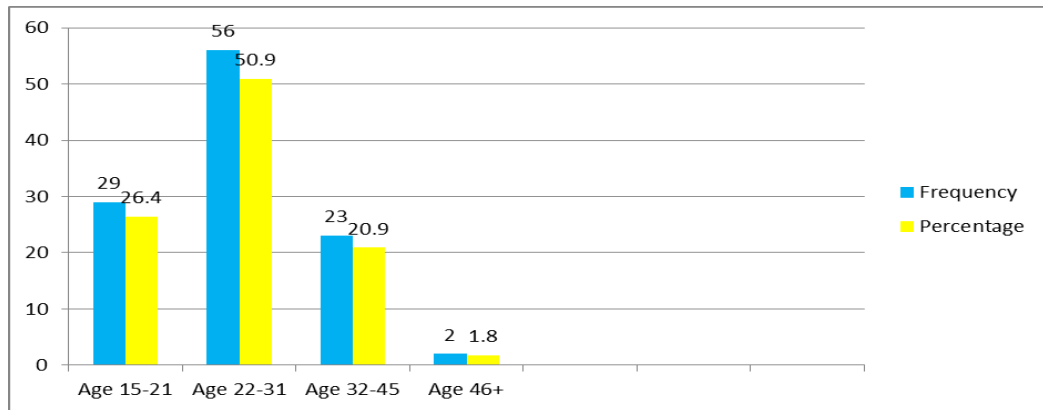
Figure 2. Age of respondents

Figure 2 shows that 29 (26%) of the respondents were between 15 – 21 years of age, 56 (50.9%) were between 22 – 31 years of age, 23 (20.9%) were between 32 – 45 years of age, while two (1.8%) were 46 years of age or older. A Chi–square test was conducted to determine whether the age of students at the University influences how they perceive customer service orientation provided by the University. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2 = .001; df = 8; 0.005).
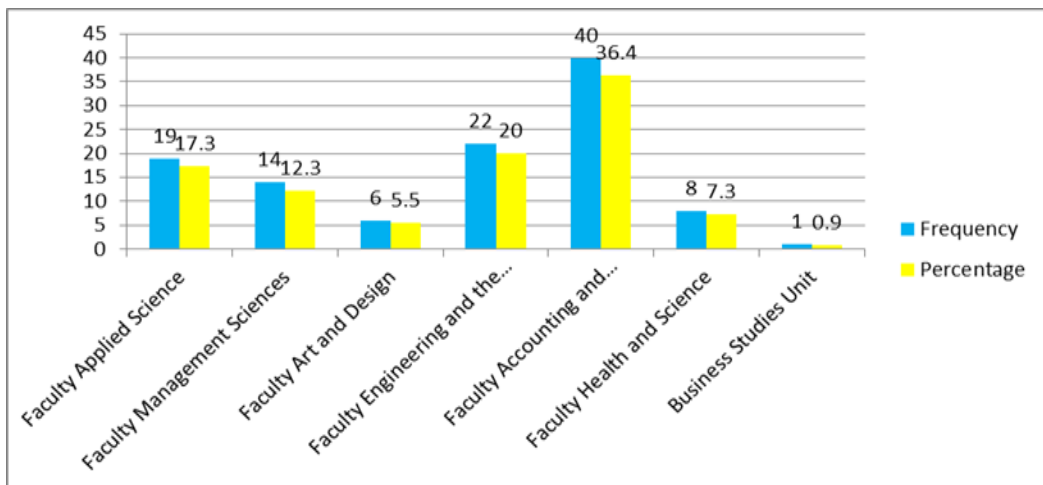
Figure 3. Faculties of Respondents

As illustrated in Figure 3, 19 (17.3%) of the respondents were from the faculty of Applied Science, 14 (12.7%) were from the faculty of Management Science, six (5.5%) were from the faculty of Art and Design, with 22 (20%) from the faculty of Engineering and the Built Environment, and 40 (36.4%) were from the faculty of Accounting and Informatics. Another eight (7.3%) were from the faculty of Health and Science and one (0.9%) was from the Business studies Unit. A Chi–square test was conducted, to determine whether the faculty at which students are registered, influences how they perceive service quality provided by the university. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2 = 43, 450; df= 24; P = .009).
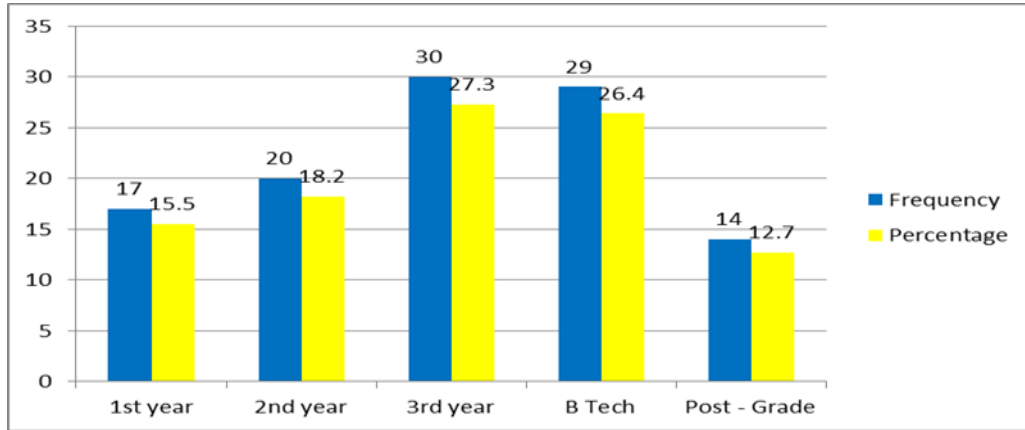
Figure 4. Level of qualification of respondents

The findings reflected by Figure 4, show that, of the 110 respondents who answered the questionnaire, 17 (15.5%) were first year students, 20 (18.2%) were second year students, and 30 (27.3%) were third year student, with 29 (26.4%) B–Tech and 14 (12.7%) post–graduate students. A Chi–square test was conducted, to determine if the level at which students were registered has any influence on how they perceive the quality of service provided by the University. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2 = 43, 799, df =16, P= .000).
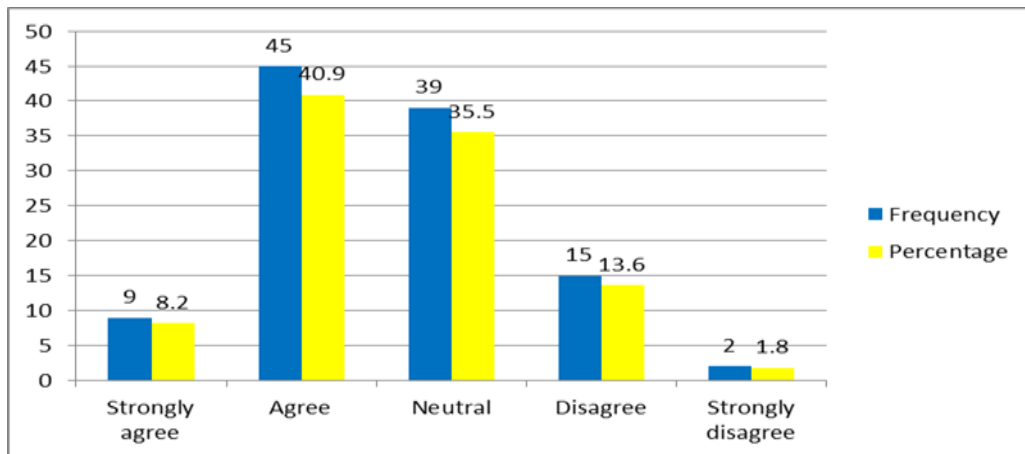
Figure 5. Academic Challenges of the respondents

As illustrated in Figure 5, 54 (49.1%) of the respondents agree that, studying at a University of Technology is academically challenging, while 39 (35.5%) are neutral towards the statement, and 17 (15.4%) disagree with the statement. A Chi-square test was conducted, to determine if academic challenges for students at the university include quality of service orientation. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2: 42, 478; df= 16; P=.000).
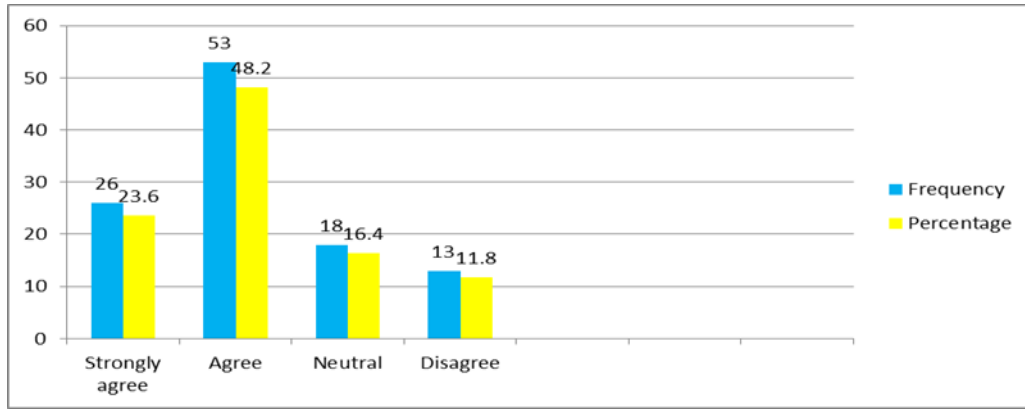
Figure 6. Responsibilities of respondents at the University

The findings, illustrated in Figure 6, show that 26 (23.6%) of the respondents strongly agree that studying at the University of Technology encompasses too many responsibilities, with 53 (48.2%) of the respondents agreeing, while 18 (16.4%) are neutral and 13 (11.8%) disagree. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2= 36.265; df=12; P= .000).
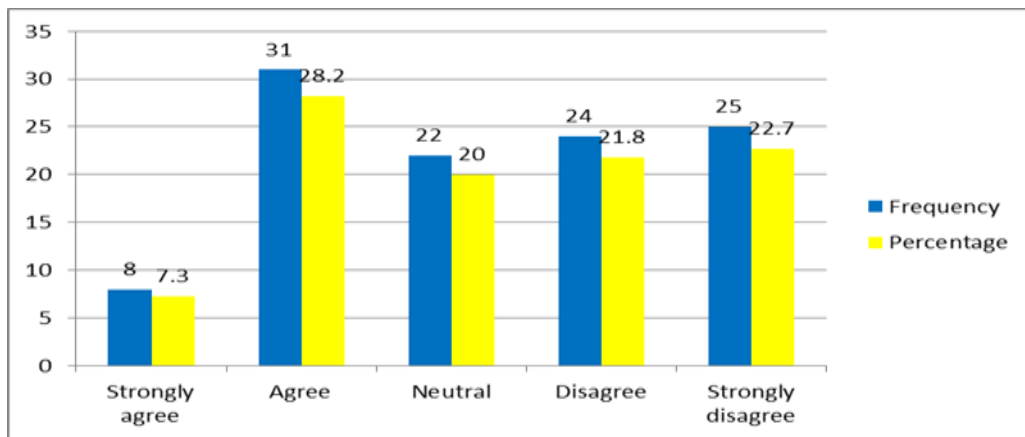
Figure 7. Respondents' time allocation

The results, as shown in Figure 7, illustrate that eight (7.3%) of the respondents strongly agree that there is sufficient time to relax, study, do homework and socialise. A further 31 (28.2%) agree with the statement, 22 (20%) are neutral, while 24 (21.8%) disagree and 25 (22.7%) strongly disagree. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2=46. 444; df = 16; P = .000).

Figure 8. Respondents' feelings about Facilities at the University

Figure 8 shows that only six (5.5%) of the respondents strongly agree that facilities at the University of Technology are good and enough for all students, with an additional 31 (28.2%) agreeing with the statement, with 36 (32.7%) indicating that they were neutral. Twenty-five (22.7%) disagree, and 11 (10%) strongly disagree, while one (0.9) response was missing or not answered. A Chi–square test was conducted, to determine if the University does have enough facilities to accommodate all registered students. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2= 84.777; df = 24; P = .000).
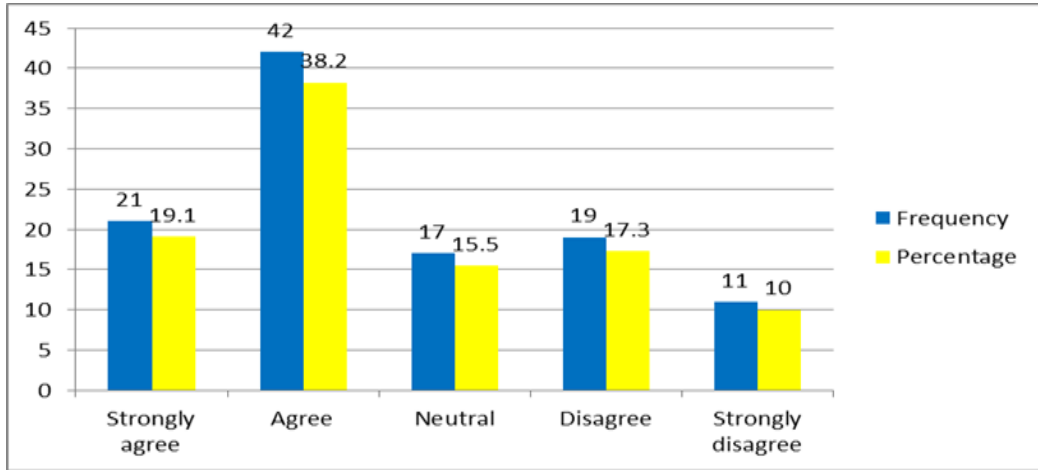
Figure 9. Respondents' feelings with regard to administration of other activities and service

Figure 9 indicates that 21 (19.1%) and 42 (38.2%) of the respondents agree that good administration of other activities and service such as getting results and fees updates on time, 17 (15.5%) are neutral, while 19 (17.3%) and 11 (10%) of the respondents disagree. A Chi–square test was conducted, to determine if good administration of other activities and service do have impact on how students perceived customer service orientation of University. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2=82.775; df=24; P= .000).
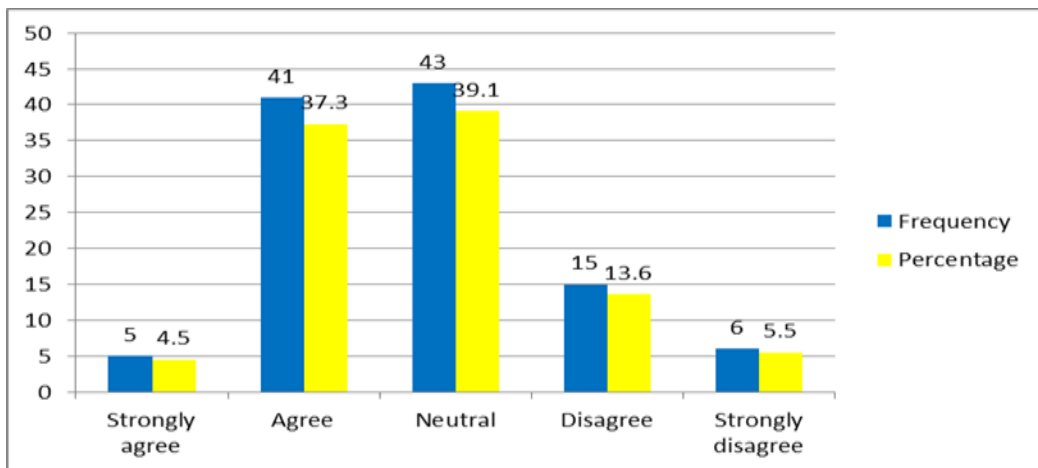
Figure 10. Respondents perceptions regarding the competence and qualifications of Academic staff

The findings illustrated by Figure 10 shows that five (4.5%) and 41 (37.1%) of the respondents agree with the statement that academic staff, including lecturers, are highly qualified and competent. A total, of 43 (39.1%) of the respondents are neutral, while 15 (13.6%) and six (5.5%) disagree. A Chi–square test was conducted on the relationship between the students' faculties, their level of study, and how they felt about academic staff qualifications and competency. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2 = 83.508; df= 24; P= .000).
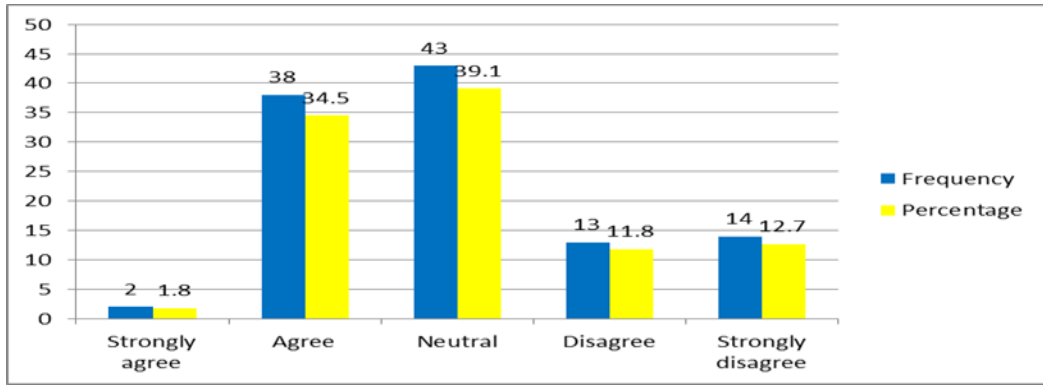
Figure 11. Respondents' feelings about academic staff behaving ethically and with professionalism

Figure 11 reveals that two (1.8%) and 38 (34.5%) of the respondents agreed with the statement that the behaviour of academic staff is more ethical and professional. While 43 (39.1%) of the respondents gave a neutral response, 13 (11.8%) and 14 (12.7%) disagree. A Chi–square test was conducted on the perception of all registered students at the University of Technology, regarding this statement. A Chi –square goodness of fit test showed this finding to be statistically significant (X^2=49.739; df= 12; P= .000).
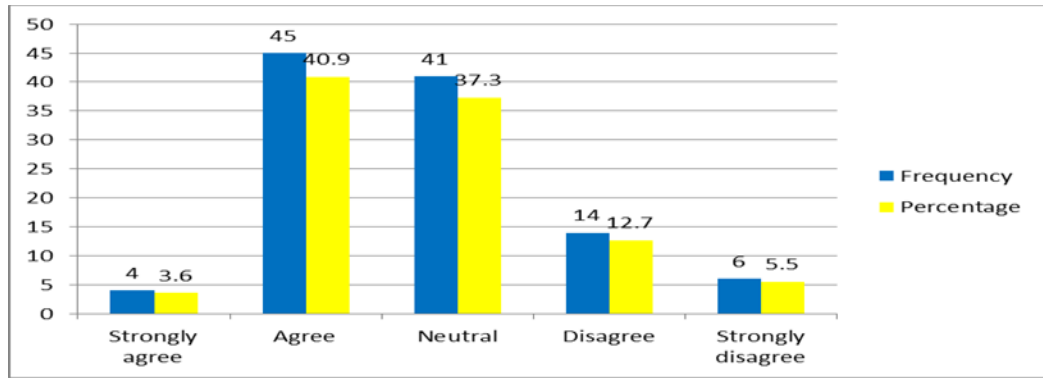
Figure 12. Respondents feelings about academic staff attendance during lecturing time

Figure 12 indicates that four (3.6%) and 45 (40.9%) of the respondents agreed with the statement that academic staff are always on time for lectures, with 41 (37.3%) being neutral, and 14 (12.7%) and six (5.5%) disagree. A Chi- square goodness of fit was conducted, to determine if all students from different faculties believe academic staff are always on time for lectures, as well as whether students have time to relax, study, do homework and socialise. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2 = 3,823; df = 6; P= .701).
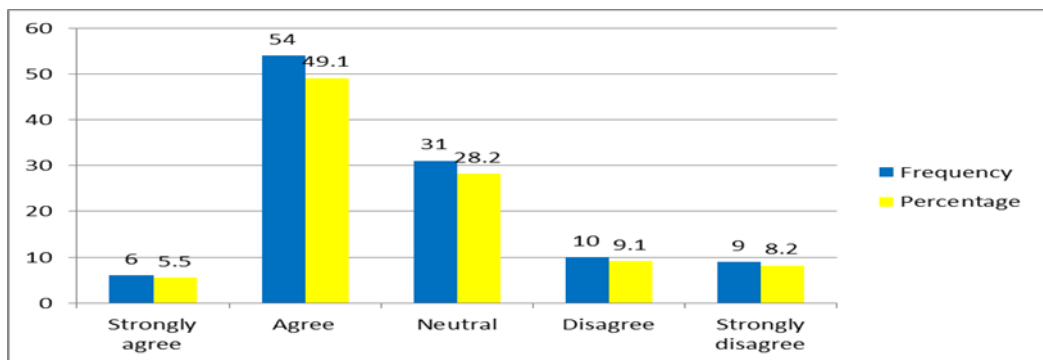
Figure 13. Respondents attitude towards the University programmes' structure

The results displayed in Figure 13 show that, of the respondents, six (5.5%) and 54 (49.1%) agree that programmes are structured very well and are adequate, while 31 (28.2%) are neutral, and 10 (9.1%)

and nine (8.2%) disagree. A Chi–square test was conducted on the relationship between faculties under which students are registered, and the availability of research funding, in all programmes offered by the University of Technology. A Chi–square goodness of fit test showed this finding to be statistically significant ($X^2 = 64,549$; df = 24; P = .000).
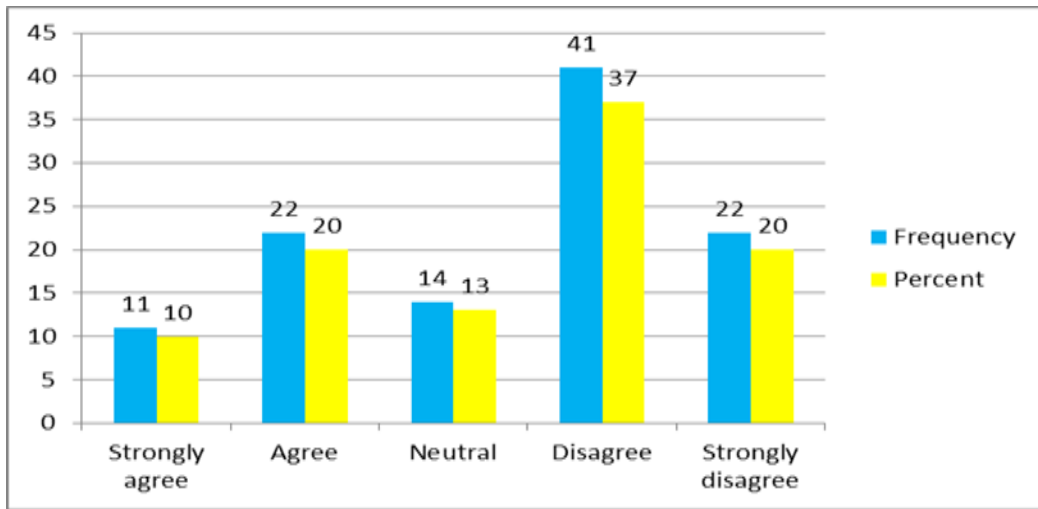
**Figure 14.** Perceptions of respondents about availability of research funding in University

Figure 14 illustrates that one (10%) and 22 (20%) of the respondents agreed that research funding, and other relevant financial assistance, are made available to all students, while 14 (13%) are neutral, and 41 (37%) and 22 (20%) disagree. A Chi–square test was conducted, to determine whether students from all faculties believe that research funding is accessible by every student who needs it. A Chi–square goodness of fit test showed this finding to be statistically significant ($X^2 = 84.777$; df = 24; P = .000).
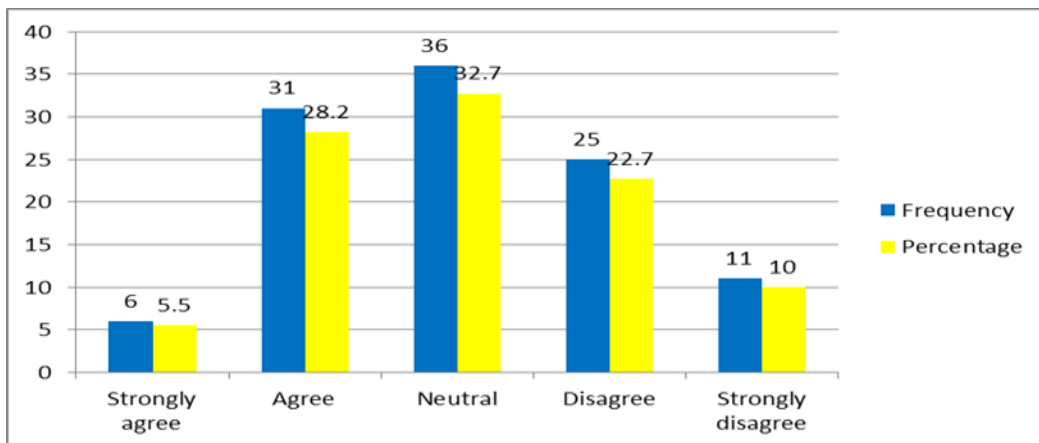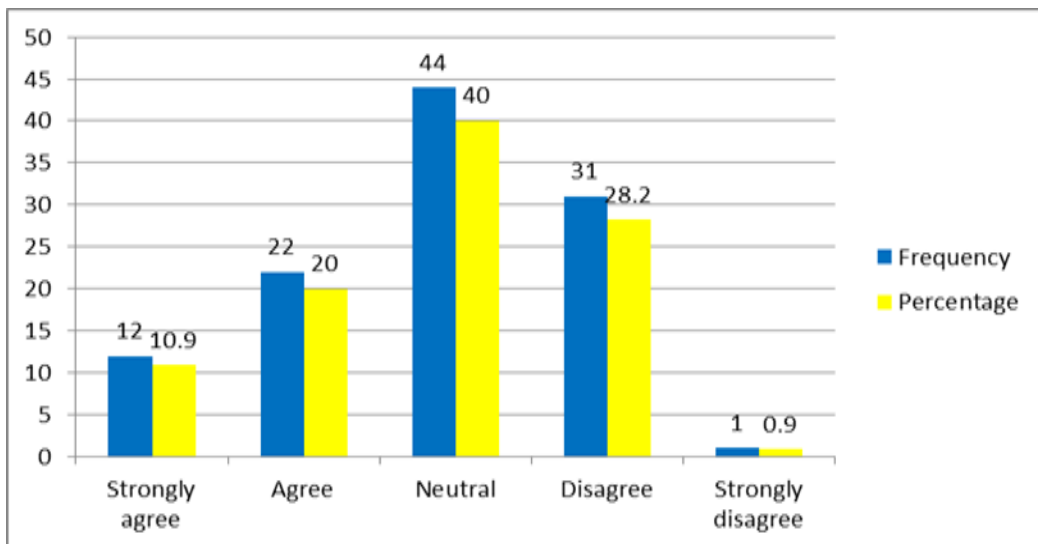

Figure 15. Respondents' feelings about University pass rate

The results, as shown in Figure 15, indicate that 12 (10.9%) and 22 (20%) of the respondents agree that the pass rate at the University of Technology is good in all faculties, with 44 (40%) indicating neutral, while 31 (28.2%) and one (0.9%) disagree. A Chi–square test was conducted, to determine whether students from all faculties believe that the pass rate at the University of Technology is good. A Chi–square goodness of fit test showed this finding to be statistically significant ($X^2 = 43, 025$; df= 24; P= 010).
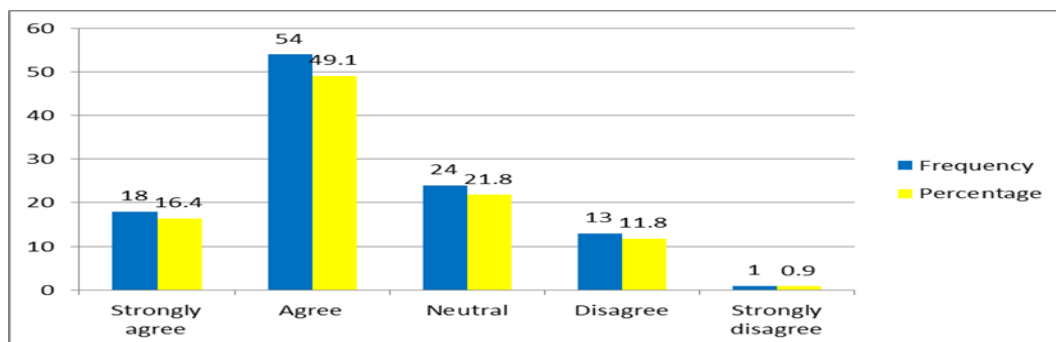
Figure 16. Respondents' perceptions about time stipulated to finish programme

Figure 16 reveals that 18 (16.4%) and 54 (49.1%) of the respondents agree with the statement that study period is adequate for the students to finish their studies in the stipulated time, with 24 (21.8%) being neutral and 13 (11.8%) and one (0.9%) disagree. A Chi–square test was conducted on the relationship between gender, age, faculties under which students are registered, and how they feel about the stipulated time in which to finish the programme. A Chi–square goodness of fit test showed this finding to be statistically significant (X^2 = 2.731; df = 4; P =. 604).

Limitations: The study was limited to one South African institute of higher learning, which was the Durban University of Technology (DUT) only. It was therefore not appropriate to generalise the findings of the study to the total population. Nevertheless, there are many institutions of higher learning in South Africa, such as the one at which the research study was carried out, in which there might be the same problem.

7. Conclusions and recommendations

Conclusions: This study investigated the nature, causes, and the effects of customer service orientation of institutions of higher learning, with specific reference to the DUT. The findings indicate that the availability of facilities at the University of Technology is perceived as inadequate, to accommodate all students enrolled with the university. The study further found that more than 57.3% of students indicated that they perceive the university to have good administration of other activities and services, such as receiving results and fees updates on time. The results also indicate less than 50% of students agree that academic staff, including lecturers, are highly qualified and competent, while about the same percentage of students was neutral. It was, additionally found that, less than 50% of students agree that academic staffs are always on time for lectures.

Recommendations: The findings of the study suggest that there are several challenges that need to be addressed by University management and all the affiliated stakeholders, including government. The following recommendations would be helpful in meeting the identified challenges. Since many institutions of higher learning in South Africa fall under the government sector, as a policy intervention, government may consider establishing or helping to establish customer service centres on the premises. This move will help universities to handle student problems on time, before strike action is initiated.

In order to solve and address different problems and address the dissatisfaction of students, from various faculties within the Universities, government should provide varied assistance to the Universities, such as making financial support available for learning facilities improvement. To improve the quality of service, education and training at the universities should be monitored, from time to time, by government.

Recommended future research: This study was aimed at establishing the level of customer service orientation of institutions of higher learning in South Africa. Based on the findings and limitations of the study, further research could include similar studies with samples, and research in other provinces, which will include comprehensive universities, universities of Technologies, and Further Education Training (FET) facilities, for both public and private institutions, in order to find out whether these findings will be the same. In-depth, qualitative research would help to better understand the nature of these difficulties experienced by students.

References:

1. Anand, S.V & Selvaraj, M. (2012). The Impact of Service Quality on Customer Satisfaction and Loyalty in Indian Banking Sector: An Empirical Study through SERVPERF, *International Journal of Management and Business Research,* 2 (2): 151- 163.
2. Arpin, J. (2007). Students 'perceptions of service quality at the Durban University of Technology. [Online]. Available at: http://www.ir.dut.ac.za/bitstream/handle/10321/350/Arpin_2007.pdf?sequence=4 (Accessed 5/01/2014).
3. Asaduzzaman, A, Hossain, M & Rahman, M. (2013). Service quality and student satisfaction: a case study on private universities in Bangladesh. *International Journal of Economics, Finance and Management*

Sciences, 1(3): 128 -135: doi: 10.11648/j.ijefm.20130103.11

4. Athiyaman, A. (1997). Linking student satisfaction and service quality perceptions: the case of university education, *European Journal of Marketing*, 31 (7): 528-540

5. Boyd, R.L. (2012). Customer Service in Higher Education: Finding a Middle Ground. University of South Carolina. [Online]. Available at: http://www.dus.psu.edu/mentor/2012/06/customer-service-in-higher-education/ (Accessed 23/09/2013).

6. Carvalho, S.W & Mota, M. (2010). The role of trust in creating value and student loyalty in relational exchanges between higher education institutions and their students. *Journal of Marketing for Higher Education*, 20: 145 – 165.

7. Finney, T.G & Finney, R.Z. (2010). Are students their universities' customers? An exploratory study, *Education and Training*, 52 (4): 276 - 291

8. Froneman, L. (2002). Private higher educational institutions in a changing South Africa environment, *Acta Commercii*, Vol.2.

9. Gibson, A. (2010). Measuring business student satisfaction: A review and summary of the major predictors. *Journal of Higher Education Policy and Management*, 32(3), 251– 259

10. Imran, A., Ahmed, B.N, Husaain, S.I & Ahmed, K.R. (2011). Students' perception about service quality level and significant determinants of service quality for Business institutes/Universities, *Interdisciplinary Journal of Contemporary Research in Business,* 3 (8): 1062.

11. Justin, A. (2007). Students' perceptions of service quality at the Durban University of Technology.

12. [Online]. Available at: http://www.ir.dut.ac.za/handle/10321/350 (Accessed 15/08/2013).

13. Kheng, L., Mahamad, O, Ramayah, T & Mosahab, R. (2010). The Impact of Service Quality on Customer Loyalty: A Study of Banks in Penang, Malaysia, International *Journal of Marketing Studies*, No 2 November 2010.

14. Khosravia, A., Poushaneh, K, Roozegara, A & Sohrabifard, N. (2012). Determination of Factors Affecting Student Satisfaction of Islamic Azad University, *Procedia - Social and Behavioral Sciences*, 84: 579–583.

15. Kimani, S.W, Kagira, E.K. & Kendi, L. (2011). Comparative Analysis of Business Students' Perceptions of Service Quality Offered in Kenyan Universities, *International Journal of Business Administration*, 2 (1).

16. Letseka, M & Maile, S. (2008). High university drop-out rates: a threat to South Africa's future. [Online]. Available at: http://www.hsrc.ac.za/uploads/pageContent/1088/Dropout%20rates.pdf (Accessed 27/08/2013).

17. Liebenberg, J & Barnes, N. (2004). Factors influencing a customer-service culture in a higher education environment, *SA Journal of Human Resource Management*, 2 (2): 1-10.

18. Lymperopoulos, C., Chaniotakis, I.E, and Soureli, M. (2006). The importance of service quality in bank selection for mortgage loans. *Managing Service Quality*, 16 (4), 365-379.

19. Malele, I. (2011). Access to Higher Education: Challenges: Higher Education SA briefing. Online].

Available at: http://www.pmg.org.za/report/20110208-higher-education-south-africa-hesa-challenges-access-higher-education (Accessed 05/10/2013).

20. Manzoor, H. (2013). Measuring Student Satisfaction in Public and Private Universities in Pakistan, *Global Journal of Management and Business Research Interdisciplinary*, 13 (3).

21. Martensen, A., Gronholdt, L, Elkildsen, J.K, & Kristensen, K. (2000). Measuring student oriented quality in higher education: Application of the ECSI methodology. *Sinergie rapporti di icercan* 9.

22. Molaee, M., Ansari, R & Teimuor, H. (2013. Analyzing the Impact of Service Quality Dimensions on Customer Satisfaction and Loyalty in the Banking Industry of Iran, *International Journal of Academic Research in Accounting, Finance and Management Sciences* , 3 (3): 5–13

23. Murdoch, N. (2013). Only 15% of SA university students graduate. http://www.iol.co.za/lifestyle/family/kids/only-15-of-sa-university-students-graduate-1.1531809 (Retrieved February 8, 2014).

24. Oldfield, B.M & Baron, S. (2000). Student perceptions of service quality in a UK university business and management faculty. *Quality Assurance in Education*, 8 (2), 85-95.

25. Panda, T.K. (2003). Creating customer lifetime value through effective CRM in financial services industry. *Journal of Services Research*, 2(2): 157-171.

26. Robert, B. (2013). Customer Service in Education. Online]. Available at: http://customerservicezone.com/db/Customer_Service_-_Education_Sector/ (Accessed 22/08/2013).

27. Sumaedi, S, Bakti, Y & Metasari, N. (2012). An empirical study of state university students' perceived service quality, *Quality Assurance in Education*, 20 (2):164 – 183.

28. Sultan, P & Wong, H.Y. (2010). Service quality in higher education – a review and research agenda. *International Journal of Quality and Service Sciences*, 2(2), 259-272.

29. Tessema, M.T, Ready, K & Yu, W. (2012). Factors Affecting College Students' Satisfaction with Major Curriculum: Evidence from Nine Years of Data, International *Journal of Humanities and Social Science*, 2 (2).

30. van Schalkwyk, R.D. (2011). The impact of leadership practices on service quality in private higher Education in South Africa, *Master's thesis,* unpublished. *University Of South Africa.*

31. Wallace, JB 1999. The case for students as customers, quality progress, 32 (2): 47-51

32. Wiese, M., van Heerden, C.H & Jordaan, Y. (2010). The role of demographics in students' selection of higher education institutions. http://www.actacommercii.co.za/index.php/acta/article/viewFile/124/124 (Retrieved February 8, 2014).

33. Yap, S.F & Kew, M. (2007). Service quality and customer satisfaction: antecedents of customer's re-patronage intentions. [Online]. Available at: http://eprints.sunway.edu.my/46/1/service_quality.pdf (Accessed 12/08/2013).

34. Zeithaml, V.A, Bitner M.J & Glemler, D.D. (2009). Service Marketing, *Integrating Customer Focus across the Firm.* 5th Ed., McGraw-Hill publishing company, New Delhi.

CORPORATE SOCIAL RESPONSIBILITY DISCLOSURES BY SOUTH AFRICAN MINING COMPANIES: THE MARIKANA MASSACRE

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Abstract

Following the strike at Lonmin Plc. which led to the death of 34 miners and the wounding of 78 others on 16 August 2012, we evaluate whether the extent of corporate social responsibility (CSR) disclosures by South African mining companies, in total and per disclosure category, was affected by this event. Content analysis is used to measure the extent of CSR disclosures before and after the Marikana massacre in the integrated annual and stand-alone CSR reports of companies. CSR disclosure was not affected by the Marikana massacre. Our results suggest that the extent of CSR disclosure may be influenced by other factors than only the need by companies to gain or repair legitimacy in response to a legitimacy-threatening event. The only variable in our analysis that had a positive and significant association with CSR disclosure, in total and for each of the different CSR disclosure categories, is whether a company is a member of the Social Responsibility Index (SRI) or not. We use the Marikana massacre, which, following many prior research using legitimacy theory, should have an effect on disclosure, to consider whether legitimacy theory in isolation can be used to evaluate why companies make certain choices regarding the extent of their CSR disclosures.

Keywords: Corporate Social Responsibility Reporting, Legitimacy Theory, Mining Industry, South Africa, Institutional Theory

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1. Introduction

Since 1886, when gold was discovered in South Africa, rock drillers have received differential treatment, in relation to other miners, as rock drillers play a central production role underground (Rabkin, 2012). Furthermore, rock drilling skills are scarce in the platinum mining industry, and for this reason, Lonmin's management was willing to discuss wage issues with rock drillers outside the wage collective bargaining forum in June 2012. In some instances management was in a position to award discretional increases to certain categories of employees. However, this offer was not accepted by the miners (Rabkin, 2012). On 10 August 2012 about 3 000 of the 4 100 rock drill operators employed by Lonmin went on strike in the Marikana area near Rustenburg. The strike eventually led to the death of 34 miners and the wounding of 78 others on 16 August 2012 when armed South African police offices opened fire on strikers (Gladdis, 2012).

The Marikana massacre can be seen as a threat to the legitimacy of Lonmin and the mining industry. For example, Marinovich (2012) noted in an article published on the Daily Maverick blog site that the rock drillers' real grievances with Lonmin were integral to their core working conditions. In line with Marinovich, Coleman (2012) states that the Marikana massacre "raises questions about the brutal role of employers and the mining industry, and in particular the flourishing of rogue employment practices in the platinum sector".

Lonmin states in its 2012 integrated annual report that "it was easy to blame Lonmin, as some have done, for the spread of unrest in the weeks after our agreement. Unrest in the mining sector pre-dated the Marikana dispute and was growing elsewhere during it" (Lonmin Plc., 2012). Social crises, such as the 2012 Marikana massacre, which have considerable consequences with regard to the profitability and sustainability of platinum mines (Derby, 2012), potentially not only affect the legitimacy status of the company involved, but also that of the entire mining industry (Patten, 1992; Deegan and Rankin, 1996; Brown and Deegan, 1998; Deegan et al., 2000; Coetzee and Van Staden, 2011; Summerhays and De Villiers, 2012; Hasbani and Brenton, 2013). If the Marikana massacre did indeed call into question the legitimacy status of Lonmin, companies in the platinum sector, as well as companies in the mining industry as a whole, it is to be expected that the companies will respond by

increasing their CSR disclosures in their integrated annual and stand-alone CSR reports as a means to gain or repair legitimacy (Patten, 1992; Cho and Patten, 2007).

We contribute to the literature by using a legitimacy-threatening event, the Marikana massacre, to evaluate whether disclosure patterns, measured in terms of the extent of disclosure by South African mining companies, can still be explained by legitimacy theory. We evaluate and statistically compare the extent of CSR disclosures before and after the Marikana massacre in total as well as for the following CSR disclosure categories based on the Global Reporting Initiative (GRI) guidelines and prior research (Holder-Webb et al., 2009): disclosure regarding community involvement, disclosure regarding customer health and safety, environmental related disclosure, employee rated disclosure, CSR disclosure relating to supply chain management, governance related disclosure and other (any CSR disclosures that do not fall within the mentioned categories). We evaluate all CSR disclosures in order to obtain a more comprehensive view of CSR disclosure responses in reaction to the Marikana massacre. Our sample consists of 18 of the largest South African mining companies. All of our sample companies complies with the King III Code of Corporate Governance applicable to listed South African companies and have issued integrated reports during the sample period where CSR related disclosures are integrated with financial reporting (Institute of Directors in Southern Africa, King III, 2009; Johannesburg Stock Exchange (JSE), 2013). We use content analysis, both sentence count and a proportion of page method, to measure the extent of disclosure in the integrated annual reports and stand-alone CSR reports of our sample companies in the periods before and after the Marikana massacre. Following Hooks and Van Staden (2011) we use content analysis to measure the extent of disclosures since it yields similar results as quality-checklist-type measures.

Our results suggest that the extent of disclosures provided by companies in their integrated annual reports and stand-alone CSR reports can no longer be explained by legitimacy theory only. We provide evidence that CSR disclosure by South African companies, both in the period before and after the Marikana massacre, are focussed on employee related disclosures, followed by environmental disclosures and community-related disclosures. Mining companies did not increase their CSR disclosure (neither in total, nor for any of the different disclosure categories) following the Marikana massacre. In addition, we provide evidence that the extent of a company's CSR reporting is not associated with the size of a company but it is associated with membership to the JSE's SRI index. Our findings may be of interest of proponents of institutional theory who argue that CSR disclosure has become institutionalised and is no longer a function of company specific characteristics such as size and CSR related intentions and performance (Larrinaga-Gonzalez, 2007). This may also be of interest to regulators and other stakeholder groups such as labour unions, environmental groups and investors. In summary, our findings suggest, as stated in De Villiers and Alexander (2014), that CSR reporting may in fact be "driven by a desire to follow global templates", such as the GRI guidelines, which is the most widely used framework by South African mining companies, and the Broad-based Socio-economic Empowerment Charter for the South African Mining Industry (The Mining Charter, 2010; KPMG, 2011; Carels et al., 2013; KPMG, 2013).

The remainder of this study is presented as follows: section 2 provides an overview of prior literature relating to legitimacy-threatening events and states the hypotheses; section 3 presents a discussion of the data, the sample and the research method; section 4 presents the results and section 5 presents the concluding remarks on legitimacy and institutional theories, and suggestions for future research.

2. Legitimacy-threatening events and CSR disclosure

Our overall objective is to evaluate the effect of a legitimacy-threatening event (the Marikana massacre) on total CSR disclosure and on the different CSR disclosure categories. Following prior research that focussed on a legitimacy-threatening event and a specific CSR disclosure type, we develop four testable hypotheses to evaluate the effect of the Marikana massacre on employee-related disclosures (see hypothesis 1(a), 2(a), 3(a) and 4(a)). In addition, in order to achieve our stated objective, we formulate four additional hypotheses, related to hypothesis 1(a), 2(a), 3(a) and 4(a), but stated in the null form, to test the effect of the Marikana massacre on total CSR disclosure as well as other CSR disclosure categories (see hypothesis 1(b), 2(b), 3(b) and 4(b)). In summary, we test whether Marikana had an effect on the extent of CSR disclosures (in total and per category) provided by all mining companies (see H1(a) and H1(b)), Lonmin (H2(a) and H2(b)) and platinum companies (H3(a) and H3(b)). In addition, we also evaluate whether the Marikana massacre event is associated with the extent of CSR disclosures (in total and per category) provided by companies in the mining industry (see H4(a) and H4(b)).

CSR disclosures, focussing specifically on environmental disclosures, have been the subject of many prior studies, for example, Patten (1992), Brown and Deegan (1998), Deegan et al., (2000), Aerts and Cormier (2009), Summerhays and De Villiers (2012) and Hasbani and Breton (2013). Patten (1992), Deegan et al., (2000), Aerts and Cormier (2009), Cho (2009) and Summerhays and De

Villiers (2012) focus primarily on events relating to environmental issues. In summary, these studies provide evidence of increased environmental disclosure in response to a legitimacy-threatening event. Some studies focus on social disclosures by companies drawing on legitimacy theory as the explaining factor (Patten, 1991; Hasbani and Breton, 2013; Lanis and Richardson, 2013) and provide evidence of an increase in social disclosure by the company directly involved with the event as well as by other companies within the same industry (Coetzee and Van Staden, 2011). In the South African context two prior studies provide evidence of increased disclosure following a legitimacy-threatening event relating to a social issue, namely Coetzee and Van Staden (2011) and Watson (2011). Following prior research, it can be expected that the Marikana massacre resulted in a perceived threat to the legitimacy of mining companies. According to legitimacy theory, such companies may respond with increased disclosures in their integrated annual reports and stand-alone CSR reports following the legitimacy-threatening event (the Marikana masacre in this study). The hypothesis relating to employee-related CSR disclosures is stated as follows:

H1(a).   The extent of employee-related CSR disclosures after the Marikana massacre is significantly higher than the extent of employee-related CSR disclosures before the Marikana massacre for all companies in the mining industry.

The hypothesis relating to the impact of the Marikana massacre on total CSR disclosures and other categories of CSR disclosure is not supported by prior research and is stated in the null form:

H1(b). The extent of total CSR disclosures as well as other categories of CSR related disclosure after the Marikana massacre is not significantly higher than the extent of total CSR disclosures and other categories of CSR disclosure before the Marikana massacre for all companies in the mining industry.

The increase in CSR disclosures of the company directly involved in a legitimacy-threatening event tends to be higher relative to that of other companies in the industry (Patten, 1992; Deegan et al., 2000; Summerhays and De Villiers, 2012). It can thus be expected that Lonmin will seek to legitimise its existence in comparison to other companies in the mining industry by providing more disclosures. Although Coetzee and Van Staden (2011) find limited support for this notion, it is expected, based on the majority of the literature reviewed (see Patten, 1992; Deegan et al., 2000; Summerhays and De Villiers, 2012) that the extent of CSR disclosures provided by Lonmin will be higher than those for other mining companies. Thus, the hypothesis relating to employee-related CSR disclosure is stated as:

H2(a). The extent of employee-related CSR disclosures provided by Lonmin Plc. is significantly higher compared to the extent of employee-related

CSR disclosures by other companies in the mining industry following the Marikana massacre.

The hypothesis relating to total CSR disclosures and the other categories of CSR disclosure is stated as:

H2(b). The extent of total CSR disclosures as well as other categories of CSR related disclosures provided by Lonmin Plc. is not significantly higher than the extent of total CSR disclosures and other categories of CSR disclosure by other companies in the mining industry following the Marikana massacre.

According to the literature, an event threatening an entire industry can lead to changes in disclosure levels by companies in that industry (see Patten, 1992; Deegan and Rankin, 1996). Patten (1992) and Summerhays and De Villiers (2012) find that other companies in a specific industry, and not only the company that is directly associated with a legitimacy-threatening crisis, tend to also change their CSR disclosures. Patten (1992) and Summerhays and De Villiers (2012) find that the occurrence of an external significant event impacts positively on companies' environmental disclosures (which forms part of CSR disclosure). Assuming that companies will attempt to increase their CSR disclosures as a way to gain or repair the opinions of society and reduce the legitimacy gap (Patten, 1992; Summerhays and De Villiers, 2012), we expect platinum companies (being the industry associated with the event) to increase the extent of their disclosure following the Marikana massacre. Companies in mining sectors other than the platinum sector may perceive the threat as affecting the platinum mining sector's legitimacy only, and may thus not react to the negative publicity in the platinum sector (Coetzee and Van Staden, 2011). Therefore, drawing on legitimacy theory, the hypothesis regarding employee-related CSR disclosure is stated as follows:

H3(a). The extent of employee-related CSR disclosures for platinum mining companies is significantly higher compared to employee-related CSR disclosures provided by other mining companies following the Marikana massacre.

The hypothesis relating to total CSR disclosures and the other categories of CSR disclosure is stated in the null form:

H3(b). The extent of total CSR disclosures and other CSR disclosure categories for platinum mining companies is not significantly higher compared to total CSR disclosures and other CSR disclosure categories provided by other mining companies following the Marikana massacre.

Prior studies also document that companies increase their CSR disclosures following a highly published negative event (see Brown and Deegan, 1998; Deegan et al., 2000; Aerts and Cormier, 2009). Coetzee and Van Staden (2011) examined the disclosure responses of mining accidents by South African companies. Consistent with Patten (2002), Coetzee and Van Standen (2011) did not find

evidence to support the hypothesis that media attention influences safety disclosures in the South African context. They attribute their findings to the possibility that the pressure to disclose might consist of various factors not related to media attention. Thus, both hypotheses are stated in the null form:

H4(a). The Marikana massacre event is not positively and significantly associated with the extent of employee-related CSR disclosures provided by mining companies.

H4(b). The Marikana massacre event is not positively and significantly associated with the extent of total CSR disclosures and other CSR disclosure categories provided by mining companies.

The Marikana massacre, which Jacob Zuma, president of South Africa, deemed to be a national tragedy and which led to the appointment of the Farlam Commission of Enquiry, provides us with the ideal setting to evaluate whether companies increased the extent of their CSR disclosures as a result of this event. In order to evaluate the overall effect of this event on CSR disclosure, we test each of our four hypotheses using total CSR disclosure as well as CSR disclosure per category.

3. Sample and method

3.1 Sample

The sample period for this study is the reporting period immediately before and after the Marikana massacre that occurred on 16 August 2012. Our sample is based on a list of the top 39 mining companies listed in SA Mine report by PriceWaterhouseCoopers (PwC, 2012). This list is based on the financial performance of mining companies listed on the JSE whose main operations are in Africa who had a market capitalisation of more than R200 million at the end of June 2012 (PwC, 2012). We exclude 11 companies who do not have mining operations as their primary business activity, and another four companies, which are subsidiaries of companies already included in the sample. Similar to the selection criteria used by Coetzee and Van Staden (2011), we exclude a further six companies that do not derive 50 per cent or more of their turnover from mining operations in South Africa. The reason for this is that it can be argued that when companies obtain more than 50 per cent of their turnover from outside South Africa, they might perceive themselves as non-South African corporate citizens and are as such not affected by the crisis within the South African mining environment. Thus, the final sample consists of 18 companies of which six are platinum, five gold, five general and two coal mining companies.

Data for this study are collected by analysing the integrated annual and stand-alone CSR reports of the sample companies. The final sample includes seven companies with a 30 June 2012 yearend. The 30 June 2012 integrated annual and stand-alone CSR reports

of these seven companies are included in the post-Marikana massacre period because their annual reports were approved after the Marikana massacre. It is argued that although the Marikana massacre occurred after the date of their financial yearend, managers of these mining companies had time (i.e. the period from their financial yearend to the approval date of the financial statements) to increase their CSR disclosure to manage the legitimacy threat resulting from societal concern about the Marikana massacre. Therefore, these seven companies' 30 June 2011 integrated annual and stand-alone CSR reports will be included in the pre-Marikana period.

The integrated annual reports are collected from the McGregor BFA database and company websites where relevant. In addition, we analyse the stand-alone CSR reports of those companies that indicate in their annual reports that they issue such reports. The stand-alone CSR reports were collected from company websites.

3.2 Method

We use content analysis to evaluate whether there is an increase in the extent of CSR disclosures in the integrated annual reports and stand-alone CSR reports issued by the sample companies. This method has been widely used in prior research in this field (Deegan and Rankin, 1996; Boesso and Kumar, 2007; Coetzee and van Staden, 2011; Summerhays and De Villiers, 2012). The study uses a classification list similar to that used by Holder-Webb et al., (2009), based on the GRI (2006), to categorise CSR disclosures. In addition, following Cormier et al., (2004), we include governance-related disclosure, representing compliance with mining laws and rules. Our CSR disclosure classification list consists of the following eight CSR disclosure categories[1]: community, customers, environment, governance, employees, suppliers, political parties and other. Following prior research (Hackson and Milne, 1996; Deegan et al., 2000; Coetzee and Van Staden, 2011; Summerhays and De Villiers, 2012) we use sentence count to evaluate the influence of the Marikana massacre on the extent of CSR disclosures. The advantage of using sentence count is that it can be reliably coded and it is not often that coders disagree on coding categories, unlike in other methods (Hackston and Milne, 1996; Milne and Adler, 1999; Van Staden and Hooks, 2007). To address the potential of an incomplete representation of CSR disclosures (see Unerman, 2000), and following Van Staden and Hooks (2007) and Coetzee and Van Staden (2011), graphs, tables and figures are analysed using a standard sentence count of 15 words. Sentences coded as CSR disclosure sentences were grouped into one of the CSR disclosure categories according to our classification list. The total CSR disclosure is measured by counting all the sentences coded per CSR category.

As a robustness check to enhance the validity of the results, we also measure the extent of CSR disclosure using the proportion of pages allocated to each disclosure category and total CSR disclosures made in the integrated annual and stand-alone CSR reports. We utilise a grid similar to that employed by Gray et al. (1995), Unerman (2000), and Coetzee and Van Staden (2011). This grid contains 25 rows and four columns of equal width. The grid is placed over each page where CSR disclosures are coded and highlighted, and the extent of disclosure is measured by counting the number of cells on the grid utilised by the disclosure per CSR category (Unerman, 2000). Following Coetzee and Van Staden (2011) graphs and photographs are included while blank spaces are excluded.

To test our stated hypotheses, we firstly statistically evaluate whether CSR disclosure (in total as well as for each of our disclosure categories) is statistically different in the period following the Marikana massacre for all mining companies. Secondly, we statistically evaluate whether the CSR disclosure by Lonmin (in total as well as for each category) is statistically different to the CSR disclosure by other mining companies in the period following Marikana. Thirdly, we follow a similar procedure to evaluate whether CSR disclosure by platinum mining companies is statistically different from CSR disclosure by other mining companies in the period following the Marikana massacre. Finally, we use a regression analysis to test hypothesis 4. The objective with our final hypothesis is to evaluate whether the Marikana massacre had a statistically significant effect on CSR disclosure (in total and per category) after controlling for other factors that, according to prior research, could have had an effect on CSR disclosure.

4. Results testing legitimacy theory

4.1 Comparison of means and medians

Table 1 summarizes the means and the medians for our sample companies before and after the Marikana massacre. Panel A presents the results for CSR disclosure in total, while panel B presents the results for each of the CSR disclosure categories. It is interesting to note that, both in the period before and after the Marikana massacre, the CSR disclosure category with the highest level of disclosure is employee related disclosures, followed by environmental disclosures and community-related disclosures.

Table 1. Means and medians of CSR disclosure before and after Marikana for all companies in the mining industry (*Observations (N) = 18 before Marikana; N = 18 after Marikana*)

	Mean	Median
Panel A:		
Total CSR disclosures		
Before Marikana	968.28	853.00
After Marikana	1047.61	825.00
Panel B:		
CSR disclosure per category		
Community		
Before Marikana	163.61	109.50
After Marikana	190.72	139.00
Customers		
Before Marikana	44.17	21.50
After Marikana	31.56	12.00
Environment		
Before Marikana	259.00	178.50
After Marikana	268.89	194.50
Governance		
Before Marikana	83.83	79.00
After Marikana	67.06	56.50
Employees		
Before Marikana	350.06	295.00
After Marikana	432.17	353.00
Political parties		
Before Marikana	2.11	1.00
After Marikana	0.72	0.00
Suppliers		
Before Marikana	22.83	11.50
After Marikana	15.22	12.50
Other		
Before Marikana	42.67	28.00
After Marikana	41.28	29.00

4.2 Hypothesis 1 – All companies in the mining industry (before and after the Marikana massacre)

Due to the small sample size we use the Independent Sample Mann-Whitney-U-test to test whether the difference in the extent of disclosure during the periods before and after Marikana is statistically significant. The results for hypothesis 1 (a and b) are reported in Table 2. Panel A indicates that there is no

significant difference in total CSR disclosure by mining companies for the periods before and after the Marikana massacre (Z = -0.285, p = 0.791). Panel B provides the results of the analysis in terms of the CSR disclosure categories. Similar to the results for panel A, we do not find a significant increase in any of the CSR disclosure categories (p > 0.10) for all eight CSR disclosure categories.

Table 2. Comparison of CSR disclosures before and after Marikana for all the companies in the mining industry

	Mean rank	Mean rank	Z-statistic	Exact significance
	Before	After		
Observations (N)	18	18		
Panel A:				
Total CSR disclosures	18.00	19.00	-0.285	0.791
Panel B:				
CSR disclosure per category				
Community	17.25	19.75	-0.712	0.481
Consumers	19.83	17.17	-0.761	0.462
Environment	17.97	19.03	-0.301	0.767
Governance	19.06	17.94	-0.316	0.767
Employees	17.50	19.50	-0.569	0.584
Political parties	20.97	16.03	-1.499	0.161
Suppliers	19.33	17.67	-0.475	0.650
Other	18.31	18.69	-0.111	0.913

4.3 Hypothesis 2 – Lonmin Plc. compared to all other companies in the mining industry (following the Marikana massacre)

Our second analysis evaluates whether the increase in total CSR disclosures of the company associated with the event (i.e. Lonmin) is statistically significant compared to other companies in the mining industry. The results are presented in Table 3. Table 3 indicates that there is no statistically significant difference in

total CSR disclosure (panel A) between Lonmin and other mining companies following the Marikana massacre (Z = -0.096; p = 1.000). There is also no significant difference in the CSR disclosures by Lonmin and other mining companies relating to community, consumers, environment, employees, suppliers, governance, political parties and other (p > 0.10 for all eight categories of disclosure) following the Marikana massacre.

Table 3. Comparison of CSR disclosure between Lonmin and other companies in the mining industry following the Marikana massacre

	Mean rank	Mean rank	Z-statistic	Exact significance
	Other	Lonmin		
Observations (N)	17	1		
Panel A:				
Total CSR disclosures	9.53	9.00	-0.096	1.000
Panel B:				
CSR disclosure per category				
Community	9.71	6.00	-0.482	0.667
Consumers	9.59	8.00	-0.097	0.889
Environment	9.53	9.00	-0.867	1.000
Governance	9.29	13.00	-0.675	0.667
Employees	9.35	12.00	-0.289	0.778
Political parties	9.35	12.00	-1.388	0.778
Suppliers	9.41	11.00	-0.870	0.889
Other	9.24	14.00	-0.675	0.556

4.4 Hypothesis 3 – Companies in the platinum sector compared to the other companies in the mining industry (following the Marikana massacre)

Our third analysis evaluates whether that the extent of CSR disclosure by mining companies in the platinum industry is significantly different than the extent of CSR disclosures by other companies in the mining industry following the Marikana massacre. Panel A in table 4 indicates no significant difference in total CSR disclosures between the platinum and non-platinum mining companies (Z = -1.311 and p = 0.213). Panel B considers the increase in the extent of CSR disclosures per category. The results indicate that there is no significant difference in the CSR disclosures by companies in the platinum and non-platinum industry for the various categories (p > 0.10 for all categories except for suppliers).

Table 4. Comparison of CSR disclosures between platinum mining companies and other companies in the mining industry following the Marikana massacre

	Mean rank	Mean rank	Z-statistic	Exact significance
	Other	Platinum		
Observations (N)	12	6		
Panel A:				
Total CSR disclosures	8.33	11.83	-1.311	0.213
Panel B:				
CSR disclosure per category				
Community	9.00	10.50	-0.562	0.616
Consumers	8.04	12.42	-1.641	0.102
Environment	8.71	11.08	-0.890	0.385
Governance	8.00	12.5	-1.686	0.102
Employees	8.33	11.83	-1.311	0.213
Political parties	8.96	10.58	-0.630	0.553
Suppliers	7.83	12.83	-1.875	0.067
Other	9.00	10.5	-0.562	0.616

4.5 Hypothesis 4 – All companies in the mining industry (before and after the Marikana massacre; utilising a regression analysis)

Similar to the method used by Patten (1992) and Coetzee and Van Staden (2011), ordinary least-square regression analysis is used to evaluate whether there is a positive and significant association between the Marikana massacre event and the extent of CSR disclosures provided by mining companies (see hypothesis 4(a) and 4(b)). Following prior research, we control for other factors that are likely to influence the extent of CSR disclosures. The regression model is as follows:

$$DSC_{it} = b_0 + b_1 Marikana_{it} + b_2 Size_{it} + b_3 SRI_{it} + e \quad (1)$$

Where:
DSC = CSR disclosures for company i for year t,

measured in total as well as for each of the eight CSR disclosure categories. The regression model is estimated separately for total CSR disclosure as well as each of the eight CSR disclosure categories.

Marikana = A dichotomous variable equal to 1 for CSR disclosure after the Marikana massacre event and 0 otherwise.

Motivation: Prior research finds that companies increase their CSR disclosures in response to negative events associated with those companies (Patten, 1992; Brown and Deegan, 1998; Summerhays and De Villiers, 2012; Hasbani and Breton 2013; Lanis and

Richardson, 2013).

Size = Natural logarithm of total assets for company i for year t.

Motivation: Prior research provides evidence that size is positively associated with CSR disclosure (Patten, 2002; Aerts and Cormier, 2009). Patten (1992) finds that large companies are subject to more social and political pressure and are therefore likely to disclose more CSR information in comparison to smaller companies (also see Cho et al., 2012; Lanis and Richardson, 2013).

SRI = A dichotomous variable where SRI is equal to 1 if company i is a member of the JSE's SRI index for year t, and 0 otherwise.

Motivation: A company that is a member of the JSE SRI index will be expected to increase its social disclosure to convince the public that its activities are aligned to the beliefs of society (Coetzee and Van Staden, 2011; Lingenfelder and Thomas, 2011).

e = Error term.

We do not control for King III as all our sample companies have applied King III during the sample period.

Regression results:

Table 5 provides the results of equation 1 where the dependent variable is the total CSR disclosures as measured by sentence count. We evaluate the statistical association between the Marikana massacre event and the level of CSR disclosures provided by

mining companies after controlling for size and membership to the SRI index. The results in table 5 indicate that there is no statistical significant relationship between the total CSR disclosures for both the Marikana massacre event and the size of the company. Only the coefficient for membership to the SRI index is statistically significantly associated with CSR disclosure (coefficient 812.125; p = 0.001). Overall, the regression model explains 38 per cent of total CSR disclosures. The results suggest that membership to the SRI index plays a key role in the extent of CSR disclosure provided by a mining company.

Table 6 provides the results of the regression model where the dependent variable is the CSR disclosures relating to the eight CSR disclosure categories. These groups are considered separately in eight different regressions. The results suggest that the Marikana massacre did not have a statistically significant effect on CSR disclosure provided with regard to community (coefficient 21.943; p = 0.301), consumers (coefficient -14.140; p = 0.200); environment reporting (coefficient 1.952; p = 0.448),

governance (coefficient -18.269; p = 0.204), employees (coefficient 69.499; p = 0.214), suppliers (coefficient -7.918; p = 0.160) and other CSR related disclosures (coefficient -1.884; p = 0.439). Although political parties is significant at the 5 per cent level (coefficient -1.459; p = 0.039), it should be noted that the F-statistic for the model employed is not significant for political parties, as well as consumers, governance and suppliers. In summary, the regression results suggest that neither the Marikana massacre nor size has a significant association with the extent of CSR disclosures per category provided by companies. However, membership of the SRI index is positively and significantly associated with the extent of community related disclosures (p = 0.004, significant at the 1 per cent level), environmental disclosures (p = 0.002, significant at the 1 per cent level), governance disclosures (p = 0.088, significant at the 10 per cent level), employee related disclosures (p = 0.001, significant at the 1 per cent level) and other CSR related disclosures (p = 0.076, significant at the 10 per cent level).

Table 5. Regression results, the effect of Marikana on total CSR disclosure

Dependent variable: Total CSR disclosure		
	Coefficient	p-value
Intercept	-1 584.290	0.214
Marikana	49.725	0.400
Size	89.482	0.119
SRI	812.125	0.001***
Adjusted R2	0.375	n/a
F-Statistics	7.996	0.000

*** p < 0.01

Table 6. Regression results, the effect of Marikana on the different CSR disclosure categories

Dependent variables:	Community	Consumers	Environ ment	Governan ce	Employees	Suppliers	Political parties	Other
Intercept	-296.028 (0.277)	97.152 (0.367)	-559.230 (0.184)	-58.457 (0.679)	-641.780 (0.255)	-35.093 (0.490)	0.199 (0.970)	-91.053 (0.255)
Marikana	21.943 (0.301)	-14.140 (0.200)	1.952 (0.448)	-18.269 (0.204)	69.499 (0.214)	-7.918 (0.160)	-1.459 (0.039)	-1.884 (0.439)
Size	16.185 (0.186)	-2.805 (0.558)	29.370 (0.120)	5.059 (0.424)	34.280 (0.175)	2.192 (0.336)	0.041 (0.844)	5.154 (0.152)
SRI	143.519 (0.004) ***	18.763 (0.316)	234.504 (0.002) ***	42.618 (0.088) *	333.971 (0.001) ***	12.358 (0.165)	1.400 (0.129)	24.990 (0.076) *
Adjusted R2	0.283	-0.039	0.321	0.079	0.338	0.066	0.080	0.136
F-Statistics	5.606 (0.003)	0.561 (0.644)	6.503 (0.001)	2.007 (0.133)	6.950 (0.001)	1.820 (0.165)	2.009 (0.132)	2.832 (0.054)

The p-values are indicated in parenthesis: * p < 0.10; ** p < 0.05; *** p < 0.01.

4.6 Robustness tests and summary

We performed an additional analysis using the proportion of page as a measure of the extent of disclosures (in total as well as per category) to consider the robustness of the results for hypothesis 1, 2, 3 and 4. The un-tabulated results are qualitatively

similar to those reported in tables 1 to 6 and discussed in sections 4.1 to 4.5 above, except for table 6 where membership to the SRI index is positively and significantly associated with the following CSR disclosure categories: consumers (significant at the 5 per cent level compared to not significant when using sentence count) and political parties (significant at the

10 per cent level compared to not significant when using sentence count).

Overall, using both sentence count and proportion of page to measure the extent of CSR disclosures (in total and per category), our results do not support legitimacy theory in isolation as explanation of why companies make certain choices regarding the extent of disclosures in their integrated annual and stand-alone CSR reports. The results of hypothesis 4 provide evidence that membership to the SRI index is positively and significantly associated with the extent of CSR disclosures, but that size is not significantly associated with CSR disclosures.

5. Concluding remarks on legitimacy and institutional theories

The purpose of this study is to evaluate whether the Marikana massacre influenced the extent of CSR disclosures provided by SA mining companies. Following legitimacy theory (Patten, 1992; Brown and Deegan, 1998; Deegan et al., 2000; Aerts and Cormier, 2009; Cho, 2009; Summerhays and De Villiers, 2012 and Hasbani and Breton, 2013), it can be argued that Lonmin, the platinum industry and the mining industry as a whole would have been under pressure to increase CSR disclosure in their integrated annual and stand-alone CSR reports in an attempt to gain or repair legitimacy, following a major event such as Marikana. Such an event has the possibility to discredit and affect the public perception of the company involved, and potentially also the industry in which it operates. We evaluate CSR disclosure in total as well as in eight different disclosure categories to obtain a comprehensive overview of CSR disclosure responses in reaction to a major legitimacy-threatening event.

In contrast to prior studies, for example, Deegan et al., 2000, Coetzee and Van Staden, 2011, we do not provide evidence of increased CSR disclosure (neither in total nor for any of the different categories) in response to the Marikana massacre. Our results indicate that South African mining companies focus their CSR-related disclosures around employee matters, followed by environmental concerns and community services, both in the period before and after the Marikana massacre. Overall, our findings suggest that companies do not necessarily use CSR disclosures to gain or repair society's perception about the operations of the company. We provide evidence, contradicting to prior research, that the size of a company is not positively and significantly associated with CSR disclosure during our sample period. However, we do find that the extent of CSR disclosures provided by companies is positively and significantly associated with membership of the JSE's SRI index. This could be due to these companies pursuing a proactive CSR strategy driven by a willingness to attain corporate success and being regarded as good corporate citizens. It is important to note that although membership to the SRI index is based on measurement against a set of environmental, social, governance and climate change criteria, it is ultimately based on an analysis of the public information that companies produce (SRI, 2014).

Our objective is not to test institutional theory, but rather to explore whether legitimacy theory used in the traditional sense (still) explains changes in CSR disclosure. Our findings are particularly relevant to users of integrated annual reports and stand-alone CSR reports as it might be an indication that the extent of CSR disclosures are no longer a function of company-specific characteristics such as size and/or CSR related intentions and performance. An alternative view to consider is whether CSR disclosure has become institutionalised as suggested by Larrinaga-Gonzalez (2007), De Villiers and Alexander (2014) and De Villiers et al., (2014).

Following Larrinaga-Gonzalez (2007), legitimacy theory within the context of institutional theory explains organisational stability in CSR disclosure behaviour (versus change in CSR disclosure behaviour as tested in this study). Following De Villiers et al., (2014), who provides evidence of institutionalisation on certain categories of CSR disclosure in the South African mining industry during 2007, organisations in similar industries will have similar reporting patterns, irrespective of the size of a company, as the reporting field matures. Following institutional theory, professionalization in reporting, driven by similar training between professionals in terms of what is required, conformation to taken-for-granted norms and the internationalisation of new norms may result in shared norms and CSR disclosure guidelines being followed (De Villiers and Alexander, 2014; De Villiers et al., 2014). The internationalisation of new norms include, for example, the framework on integrated reporting, the GRI guidelines which has become the most widely used framework for CSR reporting both nationally and internationally (KPMG, 2011; KPMG, 2013) and specific reporting requirements relevant to mining companies (The Mining Charter, 2010).

In summary, although our objective is not to test institutional theory, our findings support the notion that institutional theory may explain why our sample companies did not increase the extent of their CSR disclosure in response to the Marikana massacre. Our results suggest that CSR reporting by mining companies in their integrated annual and stand-alone CSR reports might in fact be representing organisation stability, which is related to legitimacy in the context of institutional theory, by following similar disclosure patterns. Therefore our findings suggest, as stated in De Villiers and Alexander (2014), that CSR reporting may in fact be "driven by a desire to follow global templates"

Our findings may not be generalizable to industries other that the mining industry. We also

cannot rule out the possibility that, due to the involvement of the South African police, who were responsible for the death and wounding of mine workers, mining companies potentially did not deem the event to be a threat to their legitimacy. Our findings may also not be generalizable to other disclosure media such as reactive press-releases and other web-site communications. Future research needs to evaluate how disclosure tone is used to communicate information, using different disclosure media, when a company or industry is facing a legitimacy-threatening event. Future research also needs to empirically address the question regarding the interaction between institutionalisation within an industry and membership of the SRI index (where institutional pressures may also be present) and its combined effect on CSR disclosure.

References:

1. Aerts, W. and Cormier, D. (2009), "Media legitimacy and corporate environmental communication", Accounting, Organisations and Society, Vol. 34, pp. 1-27.
2. Boesso, G. and Kumar, K. (2007), "Drivers of corporate voluntary disclosure: a framework and empirical evidence from Italy and the United States", Accounting, Auditing & Accountability Journal, Vol. 20, pp. 269-296.
3. Brown, N. and Deegan, C. (1998), "The public disclosure of environmental performance information – a dual test of media agenda setting theory and legitimacy theory, Accounting and Business Research, Vol. 29 No. 1, pp. 21-41.
4. Carels, C., Maroun, W. and Padia, N. (2013), "Integrated reporting in the South African mining sector", Corporate Ownership and Control, Vol. 11 No. 1, pp. 957-970.
5. Coleman, N. (2012), "More questions than answers", Mail and Guardian, 2 November 2012, p. 1.
6. Cho, C.H. (2009), "Legitimation strategies used in response to environmental disaster: a French case study of Total SA's Erika and AZF incidents", European Accounting Review, Vol. 18 No. 1, pp. 33-62.
7. Cho, C.H., Guidry, R.P., Hageman, A.M. and Patten, D.M. (2012), "Do actions speak louder than words? An empirical investigation of corporate environmental reputation", Accounting, Organizations and Society, Vol. 37, pp. 14-25.
8. Cho, C.H. and Patten, D.M. (2007), "The role of environmental disclosures as tools of legitimacy: a research note", Accounting, Organizations and Society, Vol. 32 No. 7/8, pp. 639-647.
9. Coetzee, C.M. and Van Standen C.J. (2011), "Disclosures responses to mining accidents: South African evidence", Accounting Forum, Vol. 35, pp. 232-246.
10. Cormier, D., Gordon, I.M. and Magnan, M. (2004), "Corporate environmental disclosure: contrasting management's perceptions with reality", Journal of Business Ethics, Vol. 49 No. 2, pp. 143-165.
11. De Villiers, C. and Alexander, D. (2014), "The institutionalisation of corporate social responsibility reporting", The British Accounting Review, forthcoming, available at:
http://dx.doi.org/10.1016/j.bar.2014.03.001 (accessed 23 April 2014).
12. De Villiers, C., Low, M. and Samkin, G. (2014), "The institutionalisation of mining company sustainability disclosures", Journal of Cleaner Production, forthcoming, available at: http://dx.doi.org/10.1016/j.jclepro.2014.01.089 accessed 23 April 2014.
13. Deegan, C. and Rankin, M. 1996. "Do Australian companies report environmental news objectively? An analysis of environmental disclosures by firms prosecuted successfully by the Environmental Protection Authority", Accounting, Auditing & Accountability, Vol. 9 No. 2, pp. 50-67.
14. Deegan, C., Rankin, M. and Voght, P. (2000), "Firms' disclosure reactions to major social incidents: Australian evidence", Accounting Forum, Vol. 24 No. 1, pp. 101-130.
15. Derby, R. (2012), "Mine killings highlight platinum's other woes", Business Day, 20 August 2012, p. 2.
16. Gladdis, K. (2012), "South African police reveal 34 miners died and 78 were wounded when armed officers opened fire on strikers", The Daily Mail, 16 August, available at: http://www.dailymail.co.uk/news/article-2189367/Marikana-strike-Police-gun-striking-South-African-miners-killing-30-leaving-scores-wounded.html#ixzz2nEBJvr3V (accessed 16 October 2013).
17. Global Reporting Initiative (GRI), available at: https://www.globalreporting.org/Information/about-gri/Pages/default.aspx (accessed 13 October 2013).
18. Gray, R., Kouhy, R. and Lavers, S. (1995), "Corporate social and environmental reporting: a review of the literature and a longitudinal study of UK disclosure", Accounting, Auditing & Accountability Journal, Vol. 8 No. 2, pp. 47-77.
19. Hackson, D. and Milne, M.J. (1996), "Some determinants of social and environmental disclosures in New Zealand companies", Accounting, Auditing & Accountability Journal, Vol. 9 No. 1, pp. 77-108.
20. Hasbani, M. and Breton, G. (2013), "Restoring social legitimacy discursive strategies used by a pharmaceutical industry leader", Society and Business Review, Vol. 8 No. 1, pp. 71-89.
21. Holder-Webb, L., Cohen, J.R., Nath, L. and Wood, D. (2009), "The supply of corporate social responsibility disclosures among US firms", Journal of Business Ethics, Vol. 84, pp. 497-527.
22. Hooks, J. and Van Standen, C.J. (2011), "Evaluating environmental disclosures: the relationship between quality and extent measures", British Accounting Review, Vol. 43 No. 3, pp. 200-213.
23. Institute of Directors in Southern Africa. (2009), The King Code of Corporate Governance for South Africa (2009) and King Report on Governance for South Africa (2009) (King III), Lexis Nexus South Africa, Johannesburg, South Africa.
24. Johannesburg Stock Exchange. (2014), JSE Listing Requirements, available at https://www.jse.co.za/content/JSESpecificationsItems/Guidelines%20to%20Listing%20on%20the%20JSE.pdf (accessed 25 April 2014).
25. KPMG International Survey of Corporate Responsibility Reporting. (2011), available at: http://www.kpmg.com/PT/pt/IssuesAndInsights/Documents/corporate-responsibility2011.pdf (accessed 25 June 2012).

26. KPMG International Survey of Corporate Responsibility Reporting. (2013), available at: http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/corporate-responsibility/Pages/default.aspx (accessed 25 April 2014).

27. Lanis, R. and Richardson, G. (2013), "Corporate social responsibility and tax aggressiveness: a test of legitimacy theory", Accounting, Auditing & Accountability Journal, Vol. 26 No. 1, pp. 75-100.

28. Larrinaga-Gonzalez, C. (2007), "Sustainability reporting: insights from neo-institutional theory", in Unerman, J., Bebbington, J. and O'Dwyer, B. (Eds.), Sustainability Accounting and Accountability, Routledge, Abingdon, pp. 150-167.

29. Lingenfelder, D. and Thomas, A. (2011), "Stakeholder inclusiveness in sustainability reporting by mining companies listed on the Johannesburg securities exchange", African Journal of Business Ethics, Vol. 5 No, 1.

30. Lonmin Plc. (2012), "Annual report", available at: https://www.lonmin.com/annual_report_2012 (accessed 11 June 2013).

31. Marinovich, G. (2012), "Beyond the chaos at Marikana: the search for the real issues", Daily Maverick, available at: http://www.dailymaverick.co.za/article/2012-08-17-beyond-the-chaos-at-marikana-the-search-for-the-real-issues#.U15Of88aI5t (accessed 9 June 2013).

32. Milne, M.J. and Adler, R.W. (1999), "Exploring the reliability of social and environmental disclosures content analysis", Accounting, Auditing & Accountability Journal, Vol. 12 No. 2, pp. 237-256.

33. Patten, D.M. (1991), "Exposure, legitimacy and social disclosure", Journal of Accounting and Public Policy, Vol. 10 No. 4, pp. 297-308.

34. Patten, D.M. (1992), "Intra-industry environmental disclosures in response to the Alaskan oil spill: a note on legitimacy", Accounting, Organizations and Society, Vol. 17 No. 5, pp. 471-475.

35. Patten, D.M. (2002), "The relation between environmental performance and environmental disclosure: a research note", Accounting, Organizations and Society, Vol. 27 No. 8, pp. 763-773.

36. PriceWaterhouseCoopers. (2012), SA Mine: highlighting trends in the South African mining industry.

37. Rabkin, F. (2012), "Manager confirms Lonmin 'side-lined' unions at Karee", Business Day, 4 December, p. 4.

38. Summerhays, K. and De Villiers, C. (2012), "Oil company annual report disclosure responses to the 2010 Gulf of Mexico oil spill", Journal of the Asia-Pacific Centre for Environmental Accountability, Vol. 18 No. 2, pp. 103-130.

39. Social Responsibility Index (SRI). (2014), available at https://www.jse.co.za/services/market-data/indices/socially-responsible-investment-index (accessed 6 May 2014).

40. The Mining Charter. (2010), "The Broad-based socio-economic empowerment charter for the South African mining and minerals industry", The Mining Charter (2010), Republic of South Africa, available at http://www.dmr.gov.za/publications/finish/108-minerals-act-charter-and-scorecard/128-amendedofbbseecharter/0.html (accessed 25 April 2014).

41. Unerman, J. (2000), "Methodological issues: reflections on quantification in corporate social reporting content analysis", Accounting, Auditing & Accountability Journal, Vol. 13 No. 5, pp. 667-680.

42. Van Standen, C.J. and Hooks, J. (2007), "A comprehensive comparison or corporate environmental reporting and responsiveness", The British Accounting Review, Vol. 39, pp. 197-210.

43. Watson, S. (2011), "Conflict diamonds, legitimacy and media agenda: an examination of annual report disclosures", Meditari Accountancy Research, Vol. 19 No. 1/2, pp. 94-111.

Note:

More information regarding the different CSR disclosure categories can be obtained from the authors.

THE EFFECT OF THE FINANCIAL CRISIS ON THE DISCLOSED LEVEL OF RISK: A COMPARATIVE STUDY OF U.S. AND CANADIAN CORPORATIONS

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Abstract

The effect of the financial crisis on the level of enterprise risk management (ERM) disclosures was examined through a content analysis of the 2007 and 2008 annual reports of S&P 500 and S&P-TSX Composite Index companies in the consumer discretionary, energy, industrials, and materials sectors. We found that the 2008 financial crisis had a negligible impact on the level of risk disclosures by major non-financial U.S. and Canadian corporations. Comparing the average levels of risks disclosed between the two countries, any differences in the level of risk exposure, risk consequences, or risk management could not be considered to be statistically significant.

Keywords: Financial Crisis, Risk Level, Canada

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1. Introduction

In an earlier paper, Maingot et al (2014) examined the *number* of risk disclosures made by non-financial companies on the S&P 500 and the S&P TSX Composite Index. The objectives of this study are to continue that analysis by focusing on the *level* of the risks disclosed. More specifically, the objectives are:

(a) to examine the level of risk disclosures by non-financial U.S. companies and to determine the impact of the 2008 financial crisis on these disclosures;

(b) to examine the level of risk disclosures by non-financial Canadian companies and to determine the impact of the 2008 financial crisis on these disclosures; and

(c) to compare the levels of risk disclosures by these U.S. companies with Canadian companies.

To facilitate the sector-by-sector comparison between the two countries, the four largest non-financial sectors on the S&P TSX Composite Index were selected and the annual reports of the companies from these four sectors that were listed on the S&P 500 and on the S&P TSX Composite Indices were examined.

The world is still recovering from the financial crisis and resulting economic recession which began in 2007 in the United States and spread to the major economies around the world (Magnan and Markarian, 2011). Since the crisis, there has been a growing demand for better reporting of risks, and there is a widespread view that companies reporting risks ahead of the crisis failed to provide adequate disclosures and information about these risks (ICAEW, 2011). Enterprise Risk Management (ERM) has become an effective approach to managing and optimizing risks (Paape and Speklé, 2012).

Investors need to understand the risks that a company takes to create value (Beretta and Bozzolan, 2004). Therefore, the challenge for companies is how best to disclose the risks they face in a way that is clear and sufficient, focusing on information that is material to investors (CICA, 2008).

Instead of managing risks from a silo-based approach, ERM is a holistic approach where all risks are viewed together within a coordinated and strategic framework (Lam, 2006, Nocco and Stulz, 2006). Companies are aligning corporate governance with risk management (Sobel and Reding, 2004), and ERM is increasingly becoming a key element of good corporate governance. ERM is also having impacts on internal control and the internal audit function (Beasley et. al., 2008; SOX, 2002; Harvard Law School Forum, 2009).

In both the US and Canada, mandatory disclosure of risk reporting are required by the Financial Accounting Standards Board (FASB), the Securities and Exchange Commission (SEC), the New York Stock Exchange (NYSE), and the Canadian Institute of Chartered Accountants (CICA). However, risk disclosures in the Management Discussion and

Analysis (MD&A) section of the annual reports are voluntary in both countries.

2. Research Methodology

The 2007 and 2008 annual reports of 189 S&P 500 Index corporations in the energy, materials, industrials, and consumer discretionary sectors were examined, particularly the Management's Discussion and Analysis (MD&A) and the Notes to the Financial Statements. The focus on these four sectors facilitated sector-by-sector comparisons with 127 Canadian corporations listed on the S&P TSX Composite Index. These four sectors comprise more than 81% of the 156 non-financial companies on the S&P TSX (for 2007 and 2008).

Fourteen different types of risks were identified. These were categorized into three groups:
- **Financial:** Foreign Exchange, Interest Rate, Credit, Market, Economic
- **Business:** Political, Technology, Government Regulation, Weather, Seasonality
- **Operational:** Environmental, Operational, Supplier, Natural Resource

Using content analysis, we identified instances where each type of risk was mentioned in the annual reports; this mode of analysis has been widely used in the accounting research literature, particularly for examining social and environmental disclosures (Milne and Adler, 1999; Zéghal and Ahmed, 1990). The risks disclosed were categorized in accordance with Table 1, as discussed in AICPA/CICA (1999).

Table 1. Categorization of Risk Exposure, Consequence and Management

Risk Exposure	Risk Consequence	Risk Management
Rare	Insignificant	Accept Risk
Improbable	Minor	Reduce Risk
Possible	Moderate	Transfer Risk
Probable	Major	Avoid Risk
Certain	Catastrophic	

3. Results and Analysis

Maingot et al (2014) examined the number of disclosures as an indication of how diligently companies responded to the requirements described previously. While only financial and market risks are mentioned specifically in these requirements, all important risks are to be disclosed. In this paper, we follow with an analysis of the average disclosed level of risk between Canadian and U.S. corporations, and changes in these levels between 2007 and 2008.

3.1 Comparisons of the Disclosed Levels of Risk Exposure, Risk Consequences and Risk Management

3.1.1 The Average Level of Risk by Type of Risk

Tables 2 and 3 display the average levels of risk exposure, risk consequences, and risk management by type of risk for S&P 500 and TSX companies, respectively, for 2007 and 2008.

Table 2. Average Levels of Risk Exposure, Risk Consequences and Risk Management Disclosed by S&P 500 Companies, by Type of Risk, in 2007 and 2008

Type of Risk	Average Level of Risk Exposure		Average Level of Risk Consequences		Average Level of Risk Management	
	2007	2008	2007	2008	2007	2008
FINANCIAL RISKS						
Foreign Exchange	4.90	4.89	2.64	2.64	2.24	2.21
Interest Rate	4.98	4.96	2.62	2.60	2.37	2.32
Credit	4.64	4.66	2.92	2.94	1.88	1.88
Market	4.96	4.97	3.24	3.24	1.77	1.77
Economic	4.32	4.37	2.92	2.93	1.30	1.30
BUSINESS RISKS						
Political	4.09	4.13	2.74	2.74	1.20	1.20
Technology	4.13	4.15	2.98	2.98	1.54	1.54
Government Regulation	4.83	4.84	3.10	3.10	1.65	1.65
Weather	4.08	4.13	2.92	2.93	1.10	1.10
Seasonality	4.40	4.43	2.87	2.90	1.48	1.48
OPERATIONAL						
Environmental	4.91	4.91	3.44	3.44	1.76	1.75
Operational	4.12	4.13	3.33	3.33	1.63	1.63
Supplier	3.89	3.89	2.78	2.77	1.28	1.31
Natural Resource	3.88	3.84	3.08	3.04	1.31	1.30
OVERALL	**4.57**	**4.58**	**2.96**	**2.96**	**1.67**	**1.67**

Coding of Risk Levels		
Levels of Risk Exposure	*Levels of Risk Consequence*	*Levels of Risk Management*
1 - Rare	*1 - Insignificant*	*1 - Accept Risk*
2 - Improbable	*2 - Minor*	*2 - Reduce Risk*
3 - Possible	*3 - Moderate*	*3 - Transfer Risk*
4 - Probable	*4 - Major*	*4 - Avoid Risk*
5 - Certain	*5 - Catastrophic*	

Table 3. Average Levels of Risk Exposure, Risk Consequences and Risk Management Disclosed by TSX Companies by Type of Risk, in 2007 and 2008

Type of Risk	Average Level of Risk Exposure		Average Level of Risk Consequences		Average Level of Risk Management	
	2007	2008	2007	2008	2007	2008
FINANCIAL RISKS						
Foreign Exchange	4.96	4.93	2.88	2.87	2.26	2.27
Interest Rate	4.79	4.78	2.55	2.49	2.05	2.10
Credit	3.26	3.58	2.38	2.50	1.87	1.93
Market	4.98	4.98	3.27	3.27	1.40	1.40
Economic	4.86	4.91	3.38	3.61	1.75	1.83
BUSINESS RISKS						
Political	4.60	4.61	3.39	3.39	1.34	1.32
Technology	4.71	4.70	3.46	3.50	1.52	1.52
Government Regulation	4.61	4.61	3.26	3.27	1.35	1.35
Weather	4.52	4.52	3.26	3.26	1.45	1.45
Seasonality	4.87	4.91	2.91	2.91	1.53	1.32
OPERATIONAL						
Environmental	4.58	4.59	3.26	3.26	1.72	1.75
Operational	4.54	4.54	3.63	3.63	2.09	2.08
Supplier	3.75	3.79	3.27	3.26	1.63	1.58
Natural Resource	4.20	4.20	4.00	4.00	1.10	1.10
OVERALL	**4.56**	**4.59**	**3.14**	**3.16**	**1.75**	**1.77**

Coding of Risk Levels		
Levels of Risk Exposure	*Levels of Risk Consequence*	*Levels of Risk Management*
1 - Rare	*1 - Insignificant*	*1 - Accept Risk*
2 - Improbable	*2 - Minor*	*2 - Reduce Risk*
3 - Possible	*3 - Moderate*	*3 - Transfer Risk*
4 - Probable	*4 - Major*	*4 - Avoid Risk*
5 - Certain	*5 - Catastrophic*	

There was virtually no difference between the average levels of disclosure from 2007 to 2008 for the S&P 500 companies and only minor increases for the TSX companies. This general observation applied to all types of risk and to all three aspects of risk (exposure, consequences and management) for both S&P 500 and S&P TSX companies. The only exceptions were credit risk and economic risk disclosures by TSX companies where there were some larger increases in the average level of risk disclosed, particularly in the level of risk exposure for credit risks and in the level of risk consequences for economic risks (the standard errors[1] of the differences based on paired samples are 0.06 and 0.04, respectively).

Looking at the three aspects of risk separately, there was no difference in the average disclosed level of risk exposure between S&P 500 and TSX companies. TSX companies disclosed a higher average level of risk consequences (3.15 versus 2.96) and a higher average level of risk management (1.76

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[1] It is acknowledged that the companies were not randomly chosen and the standard error calculation may not be applicable; however, the standard error does give some sense of the nature of the differences.

versus 1.67), but these differences could not be considered statistically significant.

Table 4 shows the 2008 differences between S&P 500 and TSX companies in the average levels of risks disclosed, for different types of risk. The standard errors of the differences are displayed; these would be valid if we were to treat each sample as randomly chosen, which they were not. However, the calculated values give some context to the nature of the differences.

Table 4. Differences by Type of Risk in the 2008 Average Levels of Risk Exposure, Risk Consequences and Risk Management Disclosures between S&P 500 and TSX Companies

Type of Risk	Difference in Average Level of Risk Exposure		Difference in Average Level of Risk Consequences		Difference in Average Level of Risk Management	
	Diff	SE	Diff	SE	Diff	SE
FINANCIAL RISKS						
Foreign Exchange	-0.04	0.05	-0.23	0.06	-0.06	0.10
Interest Rate	0.18	0.07	0.11	0.08	0.22	0.10
Credit	**1.08**	0.10	0.44	0.10	-0.05	0.07
Market	-0.01	0.03	-0.03	0.07	0.37	0.06
Economic	-0.54	0.08	-0.68	0.07	-0.53	0.08
BUSINESS RISKS						
Political	-0.48	0.10	-0.65	0.09	-0.12	0.07
Technology	-0.55	0.09	-0.52	0.13	0.02	0.10
Government Regulation	0.23	0.07	-0.17	0.07	0.3	0.06
Weather	-0.39	0.13	-0.33	0.13	-0.35	0.13
Seasonality	-0.48	0.13	-0.01	0.13	0.16	0.13
OPERATIONAL						
Environmental	0.32	0.06	0.18	0.08	0	0.07
Operational	-0.41	0.14	-0.3	0.10	-0.45	0.11
Supplier	0.1	0.18	-0.49	0.13	-0.27	0.11
Natural Resource	-0.36	0.34	-0.96	0.23	0.2	0.19

Looking at the different types of risk exposure, the largest and most interesting difference was in credit risk, with S&P companies reporting an average of 4.65 (closer to "certain" than to "probable") and TSX companies reporting an average of 3.40 (from 3.26 in 2007 to 3.58 in 2008), which ratings are between "possible" and "probable". This reflected perhaps a more stable banking sector in Canada than in the U.S. and the origins of the financial crisis in the U.S. The next largest differences were in economic, political, technology, weather, seasonal, operational and natural resource risk exposures, with the Canadian firms reporting higher risks in all these types of risk. If we were to treat the samples as though they were randomly chosen, then all these differences would be statistically significant.

In risk consequences, the largest difference is seen in natural resource risk, with S&P companies reporting an average of 3.06 ("moderate risk consequences") and TSX companies reporting an average of 4.00 ("major risk consequences"). However, it should be noted that only 13% of S&P 500 companies and 8% of TSX companies reported any natural resource risk. Differences in the average risk consequences of about 0.5 are seen in economic, political, technology, supplier, and credit risks. TSX companies reported the higher level of risk consequences for the first four types of risk above, but the S&P 500 companies reported a higher level of risk consequences for credit risks. Not only did the S&P 500 companies report a higher level of credit risk exposure, but they also reported a higher level of credit risk consequences. If we were to treat the samples as though they were randomly chosen, then all these differences would be statistically highly significant.

In risk management disclosures, the largest differences between S&P 500 and TSX companies were in economic and operational risks, with TSX companies reporting a more activist risk management strategy than S&P 500 companies. The next largest differences were in supplier and weather risk management strategies where TSX companies reported higher levels of risk management strategies, and in market and interest rate risks where S&P 500 companies reported higher levels. If we were to treat the samples as though they were randomly chosen, then all these differences would be statistically highly significant.

3.1.2 The Average Level of Risk by Sector

Tables 5 and 6 display the average levels of risk exposure, risk consequences, and risk management by sector for S&P 500 and TSX companies, respectively, for 2007 and 2008.

Table 5. Average Levels of Risk Exposure, Risk Consequences and Risk Management Disclosed by S&P 500 Companies by Sector, in 2007 and 2008

Sector	Number of Companies	Average Level of Risk Exposure		Average Level of Risk Consequences		Average Level of Risk Management	
		2007	2008	2007	2008	2007	2008
Energy	40	4.42	4.44	3.03	3.03	1.66	1.66
Materials	29	4.55	4.54	2.96	2.96	1.58	1.57
Industrials	54	4.62	4.64	2.94	2.94	1.77	1.76
Consumer Discretionary	66	4.63	4.65	2.92	2.92	1.65	1.64
OVERALL	**189**	**4.57**	**4.58**	**2.96**	**2.96**	**1.67**	**1.67**

Coding of Risk Levels		
Levels of Risk Exposure	Levels of Risk Consequence	Levels of Risk Management
1 - Rare	1 - Insignificant	1 - Accept Risk
2 - Improbable	2 - Minor	2 - Reduce Risk
3 - Possible	3 - Moderate	3 - Transfer Risk
4 - Probable	4 - Major	4 - Avoid Risk
5 - Certain	5 - Catastrophic	

Table 6. Average Levels of Risk Exposure, Risk Consequences and Risk Management Disclosed by TSX Companies by Sector, in 2007 and 2008

Sector	Number of Companies	Average Level of Risk Exposure		Average Level of Risk Consequences		Average Level of Risk Management	
		2007	2008	2007	2008	2007	**2008**
Energy	45	4.55	4.60	3.15	3.20	1.78	1.80
Materials	44	4.69	4.68	3.14	3.12	1.62	1.64
Industrials	20	4.55	4.58	3.28	3.36	1.79	1.84
Consumer Discretionary	18	4.36	4.40	2.95	2.92	1.87	1.87
OVERALL	**127**	**4.56**	**4.59**	**3.14**	**3.16**	**1.75**	**1.77**

Coding of Risk Levels		
Levels of Risk Exposure	Levels of Risk Consequence	Levels of Risk Management
1 - Rare	1 - Insignificant	1 - Accept Risk
2 - Improbable	2 - Minor	2 - Reduce Risk
3 - Possible	3 - Moderate	3 - Transfer Risk
4 - Probable	4 - Major	4 - Avoid Risk
5 - Certain	5 - Catastrophic	

In the previous section, we found that any differences in the average disclosed level of risk exposure, risk consequences, or risk management between S&P 500 and TSX companies could not be considered statistically significant, despite individual differences when broken down by type of risk.

Table 7 shows the 2008 differences by sector between S&P 500 and TSX companies in the average levels of risks disclosed. The standard errors of the differences are displayed; these assume that the companies were randomly selected from each sector or that they are representative of other companies in the population.

Table 7. Differences by Sector in the 2008 Average Levels of Risk Exposure, Risk Consequences and Risk Management Disclosures between S&P 500 and TSX Companies

Sector	Number of Companies Compared	Difference in Average Level of Risk Exposure		Difference in Average Level of Risk Consequences		Difference in Average Level of Risk Management	
		Diff	SE	Diff	SE	Diff	SE
Energy	40 vs 45	-0.16	0.05	-0.17	0.06	-0.14	0.06
Materials	29 vs 44	-0.14	0.07	-0.16	0.07	-0.07	0.08
Industrials	54 vs 20	+0.06	0.09	-0.42	0.10	-0.08	0.08
Consumer Discretionary	66 vs 18	+0.25	0.05	0.00	0.08	-0.23	0.07
OVERALL	189 vs 127	-0.01		-0.20		-0.10	

The average level of risk exposure reported by S&P 500 companies was higher than by TSX companies in the consumer discretionary sector. A smaller difference was seen in the industrials sector, again with a higher level of risk exposure among S&P 500 companies. However, for the energy and materials sectors, the average risk exposure levels were higher for the TSX companies. While the TSX companies in these sectors reported risk exposure less often, they reported higher average levels of risk. If the samples were randomly selected, then the calculated standard errors of the differences would suggest that the differences in the disclosed level of risk exposure was statistically significant for the consumer discretionary, energy and materials sector.

The average disclosed level of risk consequences was higher for TSX companies for three of the four sectors, but in the consumer discretionary sector, there was virtually no difference between TSX and S&P 500 companies. The non-zero differences were statistically significant.

Finally, the average disclosed level of risk management strategies was higher for TSX companies for each of the four sectors; however, only the differences in the energy and consumer discretionary sectors were statistically significant.

6. Conclusions

The working hypothesis was that the 2008 financial crisis had an impact on the level of risk disclosures by major corporations on the S&P 500. It was hypothesized that a heightened awareness of risks resulting from the crisis would be reflected in the annual reports. Contrary to expectations, a comparison of annual reports before and after found that the 2008 financial crisis had minimal impacts on the level of disclosed risks for major U.S. corporations in the energy, materials, industrials, and consumer discretionary sectors. This finding corroborates earlier results based on the risk disclosures of non-financial Canadian companies on the S&P TSX Composite Index (Maingot, Quon and Zéghal, 2012).

There was virtually no difference between the average levels of disclosure from 2007 to 2008 for the S&P 500 companies and only minor increases for the TSX companies. This general observation applied to all types of risk and to all three aspects of risk (exposure, consequences and management) for both S&P 500 and TSX companies. The only exceptions were credit risk and economic risk disclosures by TSX companies where there were some larger increases in the average level of risk disclosed. These results are consistent with an earlier study (Maingot et al, 2014) which found that the financial crisis had very little impact on the number of risk disclosures.

Comparing the average levels of risks disclosed between the two countries, there was no difference in the average disclosed level of risk exposure between S&P 500 and TSX companies, and the non-zero differences in the average levels of risk consequences or in the average levels of risk management strategies could not be judged statistically significant.

For individual types of risks, we found that the S&P 500 companies reported not only a higher level of credit risk exposure, but also a higher level of credit risk consequences. This might be due to a more stable banking sector in Canada than in the U.S. However, the S&P companies reported credit risks less often (see Maingot et al, 2014). In risk management disclosures, the largest differences between S&P 500 and TSX companies were in economic and operational risks, with TSX companies reporting a more activist risk management strategy than S&P 500 companies.

Looking at all the types of risks combined and reporting only differences that are potentially statistically significant, the TSX companies reported higher levels of risk exposure in the consumer discretionary, energy and materials sectors, higher levels of risk consequences in the energy, industrials and materials sectors, and more activist levels of risk management in the consumer discretionary and energy sectors. The only sector where the TSX reported higher levels of risk exposure, risk consequences and risk management was the energy sector.

References:

1. American Institute of Certified Public Accountants (AICPA) and Canadian Institute of Chartered Accountants (CICA) (1999) Managing Risk in the New Economy, CICA, Toronto.

2. Beretta, S. and Bozzolan, S. (2004) A Framework for the Analysis of Firm Risk Communication, The International Journal of Accounting, Vol. 39, No. 3, pp. 265-288.
3. Beasley, M.S., Clune, R. and Hermanson, D.R. (2008) The Impact of Enterprise Risk Management on the Internal Audit Function, Journal of Forensic Accounting, Vol. IX, pp. 1-20.
4. Canadian Institute of Chartered Accountants (CICA) (2008) Building a Better MD&A Risk.
5. Harvard Law School Forum on Corporate Governance and Financial Regulation (2009) Risk Management and the Board of Directors, http://blogs.law.harvard.edu/corpgov/2009/12/17)
6. Institute of Chartered Accountants in England and Wales (ICAEW) (2011) Reporting Business Risks: Meeting Expectations.
7. Lam, J. (2006) Enterprise-Wide Risk Management and the Role of the Chief Risk Officer, ERisk, 25 March, pp. 1-5.
8. Magnan, M.L. and Markarian, G. (2011) Accounting, Governance and the Crisis: Is Risk the Missing Link? European Accounting Review, Vol. 20, No. 2, pp. 215-231.
9. Maingot, M., Quon, T.K. and Zéghal, D. (2014) The Effect of the Financial Crisis on Risk Disclosures: a Comparative Study of U.S. and Canadian Corporations, Corporate Ownership and Control, Vol. 11, Spring, pp. 447-458.
10. Maingot, M., Quon, T.K. and Zéghal, D. (2012) The Effect of the Financial Crisis on Enterprise Risk Management Disclosures, International Journal of Risk Assessment and Management, Vol. 16, No. 4, pp. 227-247.
11. Milne, M.J., and Adler, R.W. (1999) Exploring the reliability of social and environmental disclosures content analysis, Accounting, Auditing and Accountability Journal, Vol. 2, No. 2, pp. 237-256.
12. Nocco, B.W. and Stulz, M. (2006) Enterprise Risk Management: Theory and Practice, Journal of Applied Corporate Finance, Vol. 18, No. 4, pp. 1-13.
13. Paape, L. and Speklé, R.L. (2012) The Adoption and Design of Enterprise Risk Management Practices: An Empirical Study, European Accounting Review, Vol. 21, No. 3, pp. 533-564.
14. Quon, T.K., Zéghal, D. and Maingot, M. (2012) Enterprise Risk Management and Business Performance, Problems and Perspectives in Management, Vol. 10, No. 3, pp. 95-103.
15. Sarbanes-Oxley Act (SOX) (2002) Public Law No. 107-204. Government Printing Office, Washington, D.C.
16. Sobel, P.J. and Reding, K.F. (2004) Aligning Corporate Governance with Risk Management, Management Accounting Quarterly, Vol. 5, No. 2, pp. 1-9.
17. Zéghal, D. and Ahmed, S.A. (1990) Comparison of social responsibility information disclosure media by Canadian firms, Accounting, Auditing and Accountability Journal, Vol. 3, No. 1, pp. 38-53.

THE EFFECT OF DUALITY/NON-DUALITY OF CEO, BOARD SIZE, MEETING, COMMITTEE ON DOMESTIC SHAREHOLDINGS: EMPIRICAL EVIDENCE FROM SRI LANKA

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Abstract

This paper seeks to investigate the effect of duality/non-duality of CEO, board size, meeting, committee on domestic shareholdings of manufacturing companies listed on Colombo Stock Exchange over a three-year period from 2011 to 2013. The study employs the independent samples t-test, correlation and regression analyses to assess the relationships as well as the impact on domestic shareholdings using a sample of 32 quoted companies (n =32). It is found that duality & non-duality of CEO structure do not differ in relation to domestic shareholdings that are inconsistent with the hypothesis formulated. Board size (+) and board meeting (+) have shown positive relationship and board committee (-) is negatively associated with domestic shareholdings. As per the empirical results, board committee and board size have significant ($p < 0.05$) impact on domestic share holdings and insignificant impact is observed by board meeting. The present study concentrates only on the manufacturing sector quoted on Colombo Stock Exchange. This paper has taken an effort to this area of research on emerging share holdings held by local individuals and institutions in Sri Lanka and the findings could be generalized to the companies similar to this category.

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1. Introduction

There has been lack of studies examining corporate governance experiences in emerging countries (Shleifer & Vishny, 1997). A country needs to have good corporate governance that takes leadership role to ensure economy's sustainable development with growth and to overcome financial system problems that are encountered by the economy (Velnampy *et al*., 2014). According to Ajay (2007), the corporate governance issues flow from the concept of accountability for the safety and performance of assets and resources entrusted to the operating team. These issues assume greater significance and magnitude in the case of corporate form of organization where ownership and management of the organizations are distanced. The development of corporate governance has been driven by the need to restore investor confidence in capital markets. Generally, corporate governance is a system by which companies are directed and controlled. More specifically, corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment (Shleifer & Vishny, 1997, p. 737). The various techniques in the significant body of theoretical and empirical literature in accounting and finance have tested the relations among corporate governance, management turnover, corporate performance, corporate capital structure, and corporate ownership structure (Bhagat & Bolton, 2008). In general, the agency conflicts exist between managers and shareholders. From agency theory perspective, the implication for corporate governance is a need to be used for protection as well as reduction of conflicts of interest between shareholders and management, among shareholders, and between debt-holders and firms (Fama & Jensen, 1983). A multitude of governance mechanisms have been suggested to overcome the agency problem that arises from the separation of ownership and control. In this way, duality/non- duality of CEO, board size, board committee and the frequency of board meeting are used to capture the monitoring ability of the board.

Governance structure and the practices of Sri Lankan companies are highly influenced by neo-liberal reinforcement of good governance practices (De Silva Lokuwaduge, 2012; Alawattage & Wickramasinghe, 2004). The ownership structure of Sri Lankan companies is characterized by the

controlling shareholder usually being another corporate entity; wide prevalence of family ownership as the ultimate owners; extensive use of a pyramid ownership structure, cross-holdings and participation in management by controlling shareholders to enhance corporate control; and an absence of a large community of arms-length institutional shareholders (Manawaduge, De Zoysa, & Rudkin, 2009; Senaratne & Gunaratne, 2007). This paper fills the research gab by examining the effect of duality/non-duality of CEO, board size, meeting, committee on domestic shareholdings of manufacturing companies listed on Colombo Stock Exchange over a three-year period from 2011 to 2013.

Particularly, the study tries;

- to identify the association among duality/non-duality of CEO, board size, meeting, committee, and domestic shareholdings and,

- to assess the impact on domestic shareholdings.

The paper is organized as follows: In the next section, the study describes the previous studies relating to the research variables, literature gab and framework formation. Section 3 provides the methodology. In section 4, the study discusses the results. Finally, in section 5 the summary of findings with conclusion is provided.

2. Review of Literature

Corporate ownership structure has attracted the attention of academics, policy makers, and investors due to its implications for corporate governance, managerial behavior, corporate performance, market liquidity of shares, informational efficiency of prices, and the development of national capital markets (lalith, 1999). In Sri Lankan framework, quoted companies on the Colombo Stock Exchange have different types of shareholdings like individual share holdings (employees and mangers), institutional share holdings (private and government), residents, and non-residents (Sivathaasan, 2013). This study mainly focuses on the variables as duality/non-duality of CEO, board size, meeting, and committee that impact on domestic shareholdings.

2.1 Duality & Non- Duality of CEO

The issue of CEO duality has received considerable attention because the practice is commonly observed in many large corporations (Kesner, Victor, & Lamont, 1986). Literature in the corporate governance considers CEO duality (Chief Executive Officer) and non-duality structure as important determinant of corporate governance (Bhagat & Bolton, 2008), that reflects two positions as chairman and CEO at the top of the public companies. That is, whether Chairman and CEO positions are occupied by the same person or two different individuals. In general, CEO duality refers to a situation when a firm's CEO also serves as

the chairman of the board of directors. In other words, non-duality structure refers to a situation, when the positions of chairman and CEO are held by two different individuals.

The agency theory is based on the relationship between the principal and the agent and the separation of ownership from management in modern corporations provides the context for the function of the agency theory. In agency theory terms, the owners are principals and the managers are agents (Jensen and Meckling 1976). Agency problems tend to be higher when the same person holds both positions. Yermack (1996) argue that, firms are more valuable when the CEO and board chair positions are separate. Fama and Jensen (1983) suggest that the roles of a CEO (i.e. decision management) and chairperson (i.e. decision control) should be separated; otherwise a person holding both positions will dominate a board and could make a board ineffective in monitoring the managerial opportunism. The Cadbury Committee (1992) is clear that good corporate governance requires separately two positions such as Chairman and Chief Executive Officer and considered leadership structure of board as a significant mechanism of corporate governance. The Sri Lankan code issued by the Institute of Chartered Accountants of Sri Lanka (ICASL) also required separation of the top two positions of the board for effective corporate governance (Kumudini, 2011). Jensen (1993) argued that the CEO should not have a dual position as chairman of the board because the CEO may not separate personal interests from shareholder interests. The function of the chairman of the board is to conduct board meetings and supervise the evaluation and compensation of the CEO (Jensen, 1993).

The dual CEO/chairman of the board probably has significantly increased power over the board and corporation. This would probably reduce the effectiveness of the control mechanisms of the governance structure. Further, Jensen and Meckling (1976) argue that agency conflicts between managers and shareholders may be reconciled when managers possess an ownership interest in their company. According to him, managers and directors are inside shareholders who participate in the decision-making process as well as enjoying the benefits of ownership. Alternatively, stewardship theory suggests that CEO duality could promote a unified and strong leadership rather than weakening a board's independence from management and its monitoring role.

2.2 Board Size

Prior studies provide evidence on the role of board size in enhancing the monitoring of management and have considered as a significant monitoring mechanism. Since the inception of the corporate model of organization, the board of directors has served as one of the key tools of corporate governance. The board of directors leads and controls

a company and an effective board is fundamental to the success of a company. Acting as an agent for the shareholders, boards typically approve overall policies, determine senior managers' compensation, ensure compliance with laws and regulations, and establish the overall framework within which management operates. The corporate governance literature in the US and the UK focuses on the role of the board as a bridge between the owners and the management (Cadbury, 1992).

Jensen (1993) proposed that a smaller number of board members produce a more effective control mechanism and keeping boards small can help improve their performance. When boards get beyond seven or eight people, they are less likely to function effectively and are easier for the CEO to control. Smaller boards also reduce the possibility of free riding by individual directors, and increase their decision taking processes. For example, Yermack (1996) documents that for large U.S. industrial corporations, the market values firms with smaller boards more highly. Changanti, Mahajan, and Sharma (1985) also suggested that smaller boards play a more important control function whereas larger boards have difficulty coordinating their efforts which leaves managers free to pursue their own goals. However, a smaller board might be easier for the CEO to influence and a larger board would offer a greater breadth of experience.

2.3 Board Committee

Board committees are also an important mechanism of the board structure providing independent professional oversight of corporate activities to protect shareholders interests (Kumudini, 2011; Harrison, 1987). According to Faleye, Hoitash, & Udi Hoitash (2012), three principal board committees (audit, compensation, and nominating) of listed companies should be composed solely of independent directors to focus on the monitoring activities with commitment. Further, Faleye, Hoitash, and Udi Hoitash (2012) have suggested two recent developments. The first is the requirement that the principal monitoring committees be entirely staffed with independent directors, while the second is the trend toward smaller board sizes. Further, researches pointed that results will promote public policy that encourages firms to allocate board responsibilities in such a manner as to not over focus independent directors on only one dimension of their duties.

Roche (2005) states that in order to balance the power of the CEO, Asian firms have created board committees to strengthen the monitoring function of the board. In Sri Lankan context also, three committees as nomination committee, remuneration committee and audit committee should have established in a public company as per the guidance provided by the Institute of Chartered Accountants of Sri Lanka (ICASL). Individuals with expertise are

typically chosen by the firms to serve on one or more of the committees to support their top management (Agrawal & Knoeber, 1999).

Ravina and Sapienza (2010) investigated the information available to the independent directors sitting on the board of U.S. corporations in order to shed light on their monitoring ability. The findings reveal that independent directors earn positive substantial abnormal returns when they purchase their company stock.

2.4 Board Meeting

Meeting frequency is often considered in the literature as a proxy for the level of monitoring activity delivered (Collier & Gregory, 1999; Vafeas, 1999; Laksmana, 2008; Sharma et al., 2009). The Institute of Chartered Accountants of Sri Lanka (ICASL) emphasizes that board should meet regularly and meetings should be held at least once in every quarter of a financial year. Directors on boards that meet frequently are more likely to discharge their duties in accordance with shareholders ' interests and Conversely, boards that rarely meet may have no time to find out about such complex issues and may perhaps have time only to rubberstamp management plans (Habbash, 2010). Vafeas (1999) argues that independent directors are likely to demand more board meetings to enhance their ability to monitor management. At the same time, boards with higher numbers of independents are likely to need more meetings to brief members, than what would be required on boards with high insider membership (Vafeas, 1999, p. 116). Moreover, the code of best practice issued by the Cadbury Committee in 1992 concentrates on the importance of internal monitoring systems in the firms without stressing board meetings (Cadbury, 1992). But, if board meetings reflect board activity, then firms with separate chairman and CEO roles should meet more frequently since more discussion will be required within the board.

2.5 Literature Gap in relation to the corporate governance and Domestic Shareholdings

Importantly, in this study we tried to explore the influence of CEO duality structure and non-duality structure, board size, board committee and board meetings on the domestic shareholdings. In this way, the research on the relevant concepts is in the infant level in both developed and developing countries. Further, in the South Asian region, this study should be viewed as the pioneer effort to explore the gap in the corporate governance with domestic share holdings. Prominently, the unexplored conceptual link between board size, board leadership structure, board committee, board meeting and domestic share holdings should be focalized by the researchers and scholars in the corporate finance to give the new

insights for the corporate governance paradigm. Furthermore, this study finding also gives the cues to the economy in terms of standard of living of the people as the prosperity of the country. In other words, the concept as domestic shareholdings which has been considered as the dependent variable for this study enhances the standard of livings of the people. In addition, companies which have more domestic shareholdings surely are recognized as the source to alleviate poverty in the developing countries. It means that, benefit can be fully utilized by the people domestically.

Especially in Sri Lanka, recent study findings documented that, inflow of Foreign Direct Investment (FDI) has been increasing since 2005. And economic growth is not contributed by the FDI significantly (Mandal, 2012). Therefore, this is the time to empirically check the influence of CEO duality structure and non-duality structure, board size, board committee and board meetings on the domestic shareholdings in the Sri Lankan Context. Therefore, researchers hypothesized as;

H_1: There is a significant difference in domestic shareholdings between the companies with CEO duality structure and the companies with non-duality structure

H_2: Board size is positively associated with domestic shareholdings.

H_3: There is a significant impact of board size on domestic shareholdings.

H_4: Board committee is positively associated with domestic shareholdings.

H_5: There is a significant impact of board committee on domestic shareholdings.

H_6: Board meeting is positively associated with domestic shareholdings.

H_7: There is a significant impact of board meeting on domestic shareholdings

2.6 Theoretical Framework

The theoretical framework is the foundation on which the entire research project is based (Uma and Roger, 2012). Duality/non D duality of CEO, board size, board meeting, and board committee play the role of independent variable and contribute on domestic shareholdings. The following conceptual model shown in Figure 1 is formulated to depict the relationship between dependant and independent variables.
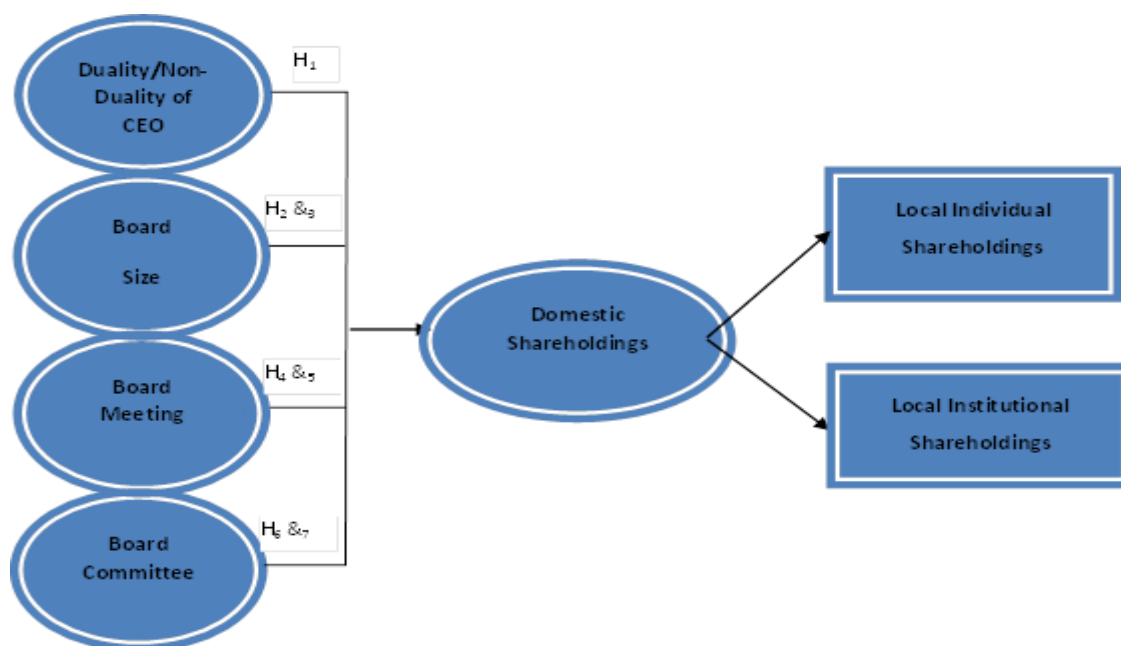
Figure 1. Conceptual Model

3. Research Methodology

The study analyzes the effect of duality and non-duality of CEO, board size, board meeting, and board committee on domestic shareholdings of 36 manufacturing companies quoted on Colombo Stock Exchange (CSE). This study used three year averages starting from the year 2011 to 2013, following Titman and Wesseles (1988).

3.1 Sample Selection

The sample for this study was drawn from the manufacturing companies listed on Colombo Stock Exchange (CSE) in Sri Lanka. The quoted companies in Colombo Stock Exchange (CSE) have been categorized into twenty business sectors and as at 31st March 2014, 293 companies representing the above sectors have been listed, with a market capitalization of Rs. 2,498 Bn (Source: Colombo Stock Exchange). The current study focuses only manufacturing sector

in which 37 companies at the above date are quoted to trade their shares publicly.

The availability of data restricts the sample. To determine the appropriate sample size, following two conditions have been adopted.

- The companies should have listed under manufacturing sector.
- Data for an uninterrupted period of three years starting from the financial year 2010/11 and

ending with the financial year 2012/13 should have been available.

According to the above conditions, 32 manufacturing companies have been selected out of total population as shown in table 1. The rules of thumb proposed by Roscoe (1975) suggest that sample size larger than 30 and less than 500 are appropriate for most research. Hence, the sample size determined for this research is consistent with the above criteria.

Table 1. Appropriate Sample Size

Description	Number
Population of Manufacturing Companies	37
Annual reports not available	(5)
Final Sample	32
Proportion of sample	86 %

3.2 Variables and Explanation

The researchers employ four most important variables such as Chairman/CEO Duality, board size, board committee, and board meeting as independent variables and domestic shareholdings as dependent variable of the study.

3.2.1 Chairman/CEO Duality

Every public company has two positions at the top as chairman and chief executive officer (CEO). But, in some companies, these two roles are usually held by the same person, known as CEO duality. Especially CEO duality can be observed in family controlled firms or family members may hold these positions (Lei and Song, 2004; Chen et al., 2005). Chairman/CEO duality is measured as an indicator variable, taking the value of 1 for non-duality and 0 otherwise.

3.2.2 Board Size

Monks and Minow (1995) and Lipton and Lorsch (1992) suggest that larger boards are able to commit more time and effort, and smaller boards are able to commit less time and effort, to overseeing management. At the same time, when a board gets too big, it becomes difficult to co-ordinate and process problems. Board size is the number of directors (executive, non-executive, independent non-executive) serving on the board.

3.2.3 Board Meeting

Board meeting frequency potentially carries important governance implications as it is less costly to adjust the frequency of its board meetings to attain better governance of the firm, than to change the composition of its board or ownership structure (Ajanthan et al., 2013). Board meeting is the number of times the board has met in a financial year.

3.2.4 Board Committee

At least three committees as nomination committee, remuneration committee and audit committee should have formed in a public company in order to direct, lead and control the company (ICASL, 2003). The size of board committee is the number of committees existing at the company.

3.2.5 Domestic Shareholdings

Firm ownership is an increasingly influential form of corporate governance, although firms might be owned by different types of owners (Sivathaasan, 2013). In general, shareholdings mean the percentage of share holdings owned by the persons or institutions. Thus, domestic shareholding is the percentage of share holdings owned by residence either individual or institutions.

Table 2 summarizes the measurement of research variables used in the study.

Table 2. Design of Variables

No	Variable	Measure/Condition Used	Type of Scale
1	Chairman/CEO Duality	1 for non-duality and 0 for CEO duality structure	Nominal Scale
2	Board Size	the number of directors serving on the board	Ratio Scale
3	Board Meeting	Number of meetings held	Ratio Scale
4	Board Committee	Number of committee established	Ratio Scale
5	Domestic Shareholdings	Percentage of shareholdings owned by local	Ratio Scale

3.3 Analytical Model

In this study, domestic shareholding is the function of duality and non-duality of CEO, board size, board meeting and board committee in the corporate governance.

$$Y_i = \beta_o + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \varepsilon_i$$

According to the above model, to understand the relationships among the variables, the model took the form as shown below.

$$DSH = \beta_o + \beta_1 DNDCEO + \beta_2 BS + \beta_3 BM + \beta_4 BC + \varepsilon_i$$

Where;

DSH = domestic shareholdings (taken as dependent variable)

DNDCEO = Duality and Non-duality of CEO

BS = Board Size

BM= Board Meeting

BC= Board Committee

e = the error term

β_0 = Constant value

$\beta_1, \beta_2, \beta_3, \beta_4$ - Model coefficients

3.4 Data Sources and Mode of Analysis

In this study, secondary data were collected for the purpose of carrying out the research, particularly from annual reports of the listed companies through CSE website, books, journals, and magazines, etc. The data collected was then analyzed by using a Statistical Package for Social Science (version 20). Both descriptive and inferential statistics specifically independent samples t-test, correlation and regression analysis have been employed. The upper level of statistical significance for hypotheses testing was set at 5%. All statistical test results were computed at the 2-tailed level of significance.

4. Results and Discussion

4.1 Descriptive Statistics

Table 3 reports the descriptive statistics for the variables considered. The sample profile consists of 12 percent companies (4) with CEO duality and 88 percent (28) with non-duality. In other words, around 88 percent companies have the positions of CEO and chairman separately. This separation of the top two positions of the board is an indication for effective corporate governance. Moreover, among those firms with non-CEO duality, only one female leads and conducts the business of the board and others are male chairmen (i.e. 96 percent). Of the sample companies, the mean board size is about seven (7) with a maximum of twelve (12) and deviation of 2.46 suggesting that manufacturing companies have relatively moderate board sizes. As far as board meeting is concerned, the board of the companies has their board meeting 6 times on average in a financial year, which is good to discharge their duties. In addition, all firms in the sample have established audit committee.

Table 3. Descriptive Statistics of Firms

Variables	Minimum	Maximum	Mean	Std. Deviation	Type of Structure
Board Committee	1	2	1.50	0.508	-
Board Meeting	0	12	5.58	4.308	-
Board Size	1	12	7.15	2.459	-
Non-CEO Duality	-	-	-	-	28 (88 %)
CEO Duality	-	-	-	-	4 (12 %)

4.2 Multi-Collinearity Analysis

Multicollinearity is an often encountered statistical phenomenon in which two or more independent variables in a multiple regression model are highly correlated (Uma and Roger, 2012). These measures indicate the degree to which one independent variable is explained by the other independent variables. More common measures for identifying multicollinearity are Tolerance test and Variance Inflation Factor (VIF) (Kleinbaum et.al, 1988). To detect multicollinearity, following cutoff value can be applied.

a) A tolerance value should be greater than 0.1. If it is less than 0.1, almost certainly, such value indicates a serious collinearity problem (Menard, 1955).

b) A VIF value should be less than 10. According to Myers (1990), a VIF value greater than 10 calls for concern of multi-collinearity.

Table 4 presents the tolerance and VIF values of the research variables. As the values are within the cutoff value, the independent variables do not propose multicollinearity problem.

Table 4. Collinearity Statistics

Independent Variables	Tolerance	VIF
Duality/Non-Duality of CEO	.868	1.153
Board Committee	.928	1.077
Board Meeting	.874	1.145
Board Size	.867	1.153

4.3 Independent Samples T-Test

The differences between companies with CEO duality structure and companies with non-duality structure regarding the domestic shareholdings were examined using independent samples t-test. As illustrated in table 5, the data failed to reveal a statistically reliable difference between leadership structures, suggesting both duality and non-duality of CEO have no difference in terms of domestic shareholdings (t = 1.210, p > 0.05). Thus, this leads to the rejection of hypothesis one (H_1), that predicts a significant difference in domestic shareholdings between the companies with CEO duality structure and companies with non-duality structure.

Table 5. Results of T-Test

	Companies with CEO Duality (n = 4)		Companies with Non-Duality of CEO (n =28)			
	Mean	S.D	Mean	S.D	t-Value	Sig.
Domestic Shareholdings	21.8599	31.43191	48.9231	42.85023	1.210	0.236

4.4 Correlation and Regression Analysis

Table 6 presents Pearson correlation coefficients among board size, meeting, committee and domestic shareholdings as well as their statistical significance. Board meeting and size demonstrated a positive association with domestic shareholdings, while negative correlation was observed between board committee and the shareholdings. Moreover, H_2, which predicted that board size is positively associated with domestic shareholdings, was fully supported. As shown in table 6, there was a high significant and positive relationship between board size and domestic shareholdings (r = 0.595, P < 0.01). H_4 proposed that board committee is positively associated with domestic shareholdings. But, this hypothesis didn't receive support, as board committee was negatively and insignificantly associated with domestic shareholdings (r = -.273, P > 0.05). H_6 stated that board meeting is positively associated with domestic shareholdings. Though the hypothesis was supported, the association between them was not significant (p > 0.05).

Table 6. The Association among Research Variables

Research Variables	Board Committee	Board Meeting	Board Size	Domestic Shareholdings
Board Committee	1			
Board Meeting	-.216	1		
Board Size	.019	.214	1	
Domestic Shareholdings	-.273	.095	.595***	1
*** significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level				

In this study, regression analysis is concerned with investigating the impact of board size, board meeting, board committee, on domestic shareholdings of thirty-two manufacturing companies quoted on CSE between 2011 and 2013. The main results obtained from the study are summarized in table 7. The variables such as board size, meeting and committee formed extremely high significant impact (F = 7.476, P < 0.01) and predicted 38.5 percent variation on domestic shareholdings. Thus, the data supported the overall model to be significant at 1 percent level.

Table 7. The Impact of Board Size, Meeting, and Committee on Domestic Shareholdings

Variable	Beta	t-statistics	Sig.	Adjusted R^2	F-statistic	Prob. (F-statistic)
Constant	-	0.500	.621			
Board Committee	-.308	-2.129	.042	0.385	7.476	.001[***]
Board Meeting	-.105	-.710	.484			
Board Size	.623	4.313	.000			
*** significant at the 1 percent level; **significant at the 5 percent level; *significant at the 10 percent level						

According to the empirical results, regression coefficient for board size and domestic shareholdings are statistically significant at 1 percent level (β = -.308, p < 0.01). For example, a 1 % increase in board size will lead to 0.623 % increase in domestic holdings**.** This evidence confirms the acceptance of hypothesis 3 (H_3). However, the empirical result in table 6 reveals an inverse impact that board committee and board meeting have on domestic shareholdings.

Though the negative impact is exposed, board committee is statistically significant at 5 percent level, which is consistent with hypothesis 5 (H_5). In contrast, the board meeting has insignificant impact on shareholdings, which leads to the rejection of hypothesis 7 (H_7).

The summary of acceptance or rejection of hypotheses formulated in this study is illustrated in table 8.

Table 8. Testing of Hypotheses

	Hypotheses	Results	Tools
H_1	There is a significant difference in domestic shareholdings between the companies with CEO duality structure and companies with non-duality structure	Rejected	Independent samples t-test
H_2	Board size is positively associated with domestic shareholdings	Accepted	Correlation
H_3	There is a significant impact of board size on domestic shareholdings	Accepted	Regression
H_4	Board committee is positively associated with domestic shareholdings	Rejected	Correlation
H_5	There is a significant impact of board committee on domestic shareholdings	Accepted	Regression
H_6	Board meeting is positively associated with domestic shareholdings	Accepted	Correlation
H_7	There is a significant impact of board meeting on domestic shareholdings	Rejected	Regression

5. Conclusion

This paper investigates the effect of duality/non-duality of CEO, board size, meeting, committee on domestic shareholdings by analyzing a sample of 32 publicly (manufacturing sector) listed companies on Colombo Stock Exchange over a three-year period from 2011 to 2013. To achieve the main aim of the paper, independent samples t-test, correlation analysis and regression analysis were employed and domestic shareholdings was measured by the percentage of shares held by either local individuals and /or local institutions. In line with T-test, it was concluded that companies with CEO duality do not differ with the companies that have non-duality structure in relation to domestic shareholdings. While A high significant and positive relationship between board size and domestic shareholdings (r = 0.595, P < 0.01) was recorded, it revealed a significant impact on domestic shareholdings at 1 % level. Concerning board committee, correlation results suggest a negative and insignificant association with domestic shareholdings (r = -.273, P > 0.05). However, regression model was statistically significant, indicating that board

committee impacts on domestic shareholdings. As far as board meeting is concerned, both correlation and regression analyses disclosed insignificant relationship as well as the impact on domestic shareholdings.

The current paper has taken an effort to this area of research on emerging share holdings held by local individuals and institutions in Sri Lanka. This may assist the researchers and practitioners to understand the relationship and the impact on domestic shareholdings in the Sri Lankan share market. The policy makers may also take a note these findings before new reforms are executed countrywide.

References:

1. Agrawal, A., & Knoeber, C.R. (1999). Outside directors, politics, and firm performance. Working paper, University of Alabama.
2. Ajanthan, A., Balaputhiran, S., & Nimalathashan, B. (2013). Corporate Governance and Banking Performance: a Comparative Study between Private and State Banking Sector in Sri Lanka. *European Journal of Business and Management*, 5(20), 92-100.

3. Ajay, K.G. (2007). *Influence of board size and independence on firm performance: a study of Indian companies.* Vikalpa, *32*(3), 39 -60.

4. Alawattage, C., & Wickramasinghe, D. (2004). Governance in dialects: Their regimes and roles of accounting in Sri Lanka. Paper presented at *The Fourth Asia Pacific Interdisciplinary Research in Accounting Conference*, Singapore.

5. Bhagat, S., & Black, B. (2001). Non-Correlation between Board Independence and Long-Term Firm Performance. *The. J. Corp. l., 27*, 231.

6. Cadbury Committee (1992). *Report of the Committee on Financial Aspects of Corporate Governance,* United Kingdom: Financial Reporting Council.

7. Changanti, R. S., Mahajan, V., & Sharma, S. (1985). Corporate board size, composition, and corporate failures in the retailing industry. *Journal of Management Studies 22*, 400–417.

8. Chen, Z., Cheung, Y.L., Stouraitis, A., & Wong, A.W.S. (2005). Ownership concentration, firm performance, and dividend policy in Hong Kong. *Pacific-Basin Finance Journal, 13* (4), 431-49.

9. Collier, P. and Gregory, A. (1999). Audit committee activity and agency costs. *Journal of Accounting and Public Policy, 18*, 311-32.

10. Colombo Stock Exchange. http://www.cse.lk/financials.do.

11. De Silva Lokuwaduge, C.S. (2012). An overview of the new listing rules and corporate governance best practice in Sri Lanka. *Journal of Modern Accounting and Auditing, 8*(4), 569-577.

12. Fama, E.F, & Jensen, M. (1983). The separation of ownership and control. *Journal of Law & Economics, 26* (2), 301-325.

13. Faleye, O., Hoitash, R., & Hoitash, U. (2012). Advisory directors. Available at SSRN 1866166.

14. ICASL. (2003). Code of best practice on corporate governance, the Institute of Chartered Accountants of Sri Lanka, Colombo. https://www.cse.lk/pdf/Corporate_Governance_Code_2013_book.pdf.

15. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: managerial behaviour, agency costs, and ownership structure. *Journal of Financial Economics, 3,* 305-360.

16. Kesner, I. F., Victor B., & Lamont B. T. (1986). Board composition and the commission of illegal acts: an investigation of *fortune* 500 companies. *Academy of Management Journal 29*, 789–799.

17. Kleinbaum, D.G., Kupper, L. L., & Muller, K. E. (1988). *Applied regression analysis and other multivariate methods*. Boston: PWS.

18. Kumudini, H. (2011). Corporate governance practices and firm performance of listed companies in Sri Lanka. *Australia: Victoria University. DBA Thesis.*

19. Laksmana, I. (2008). Corporate board governance and voluntary disclosure of executive compensation practice. *Contemporary Accounting Research,25* (4), 1147-82.

20. Lalith, P.S. (1999). The ownership structure of Sri Lankan companies. *Sri Lankan Journal of Management, 4* (3 & 4).

21. Lei, A.C.H., & Song, F.M. (2004). *Corporate governance and firm valuations: evidence from Hong Kong.* Working paper, School of Economics and Finance, The University of Hong Kong, Hong Kong.

22. Lipton, M., & Lorsch, J. (1992). A modest proposal for improved corporate governance. *Business Lawyer, 48*, 59-77.

23. Kumudini, H. (2011). Corporate governance practices and firm performance of listed companies in Sri Lanka. *Australia: Victoria University. DBA Thesis.* http://vuir.vu.edu.au/16050/1/Kumudini_Heenetigala_thesis.pdf.

24. Manawaduge, A. S., De Zoysa, A. & Rudkin, K. M. (2009). Performance implication of ownership structure and ownership concentration: evidence from Sri Lankan firms. Performance Management Association Conference (pp. 1-12). Dunedin, New Zealand: Performance Measurement Association.

25. Mandal, K. (2012). Foreign direct investment and economic growth: An analysis for selected Asian countries. *Journal of Business, 4*(1), 15-24.

26. Menard, S. (1995). *Applied logistic regression analysis. Sage University paper series on qualitative applications in the social sciences, 07-106.* Thousands Oaks, CA: Sage.

27. Monks, A., & Minow, N. (2004). *Corporate Governance*. 3rd Edition. Blackwell Publishing. Muth.

28. Myers, R. (1990). *Classical and modern regression with applications (2nd ed.).* Boston, MA: Duxbury.

29. Ravina, E., & Sapienza, P. (2010). What do independent directors know? Evidence from their trading. *Review of Financial Studies, 23*(3), 962-1003.

30. Roche, J. (2005). *Corporate governance in Asia*. Routledge.

31. Roscoe, J.T. (1975). *Fundamental research statistics for the behavioral sciences (*2n ed.)

32. Senaratne, S., & Gunaratne, P., S., M. (2007). Ownership structure and corporate governance of Sri Lankan listed companies. Paper presented at *The Fourth* International Conference on Business Management, Sri Lanka.

33. Sharma, V., Naiker, V. and Lee, B. (2009).Determinants of audit committee meeting frequency: evidence form a voluntary governance system. *Accounting Horizons,. 23* (3), 245-63.

34. Shleifer, A., & Vishny, R.W. (1986). Larger shareholders and corporate control. *Journal of Political Economy, 94*, 461-88.

35. Sivathaasan, N. (2013). Foreign ownership, domestic ownership and capital structure: special reference to manufacturing companies quoted on Colombo Stock Exchange in Sri Lanka. *European Journal of Business and Management, 5*(20), 35-41. http://www.iiste.org/Journals/index.php/EJBM/article/view/7296

36. Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance, 43*(1), 1-19.

37. Uma, S., & Roger, B. (2012). *Research methods for business:* a skill building approach. New Delhi: John Wiley & Sons Ltd.

38. Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics, 53*, 113-42.

39. Velnampy, T, Sivathaasan, N, Tharanika, R., & Sinthuja, M. (2014). Board leadership structure, audit committee and audit quality: Evidence from manufacturing companies in Sri Lanka. *International Journal of Business and Management, 9*(4), 76-85.

COMPLIANCE WITH INTERNATIONAL FINANCIAL REPORTING PARADIGM: A TALE OF TWO TRANSITION PATHS

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Abstract

This study assesses the effectiveness of contrasting regulatory approaches taken by two transition economies, namely Russia and Kazakhstan, to bring about the organisational changes prompted by International Financial Reporting Standards (IFRS). Taking International Accounting Standard (IAS) 36, with specific reference to impairment of goodwill, this paper evaluates the compliance patterns resulting from voluntary adoption by Russia and the mandated approach of Kazakhstan.

The results indicate an increasing trend in the levels of compliance by Russian and Kazakhstan firms with Russian firms surpassing the latter which is argued to be due to the contrasting approaches to IFRS adoption in both countries. Policy and regulatory implications to transition countries contemplating on shifting to the principles based paradigm is also discussed.

Keywords: IAS36, IFRS, Impairment, Transitional Economies, Russia, Kazakhstan

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1. Introduction

One of the major advantages of adoption of IFRS by countries is that it portrays the country to be reputed, modern and organised as a well regulated place to do business (Jermakowicz and Gornik-Tomaszewski, 2006). In the aftermath of IFRS adoption, Ball (2006) and Holthausen (2009) argue that this perceived advantage cannot be sustained unless accompanied by regulatory rigor. Research interests in IFRS have since shifted to the micro level implementation issues that are essential to understand the perceived benefits of IFRS adoption.

Even for common-law countries with rooted Angle-Saxon traditions, implementation of the precepts of IFRS in full has been a challenge ((Bepari, Rahman, and Mollik, 2011; Carlin and Finch, 2010b; Carlin, Finch, and Khairi, 2010; Carlin, Finch, and Laili, 2009; Carlin, Finch, and Tran, 2010). These challenges are magnified for code-law countries, especially to those with centrally-planned economies. Nobes and Parker (2008, p 245), note that 'the development of financial reporting in Eastern and central Europe has inevitably been subject to more

discontinuities [...] but no country has broken completely with the past, and influences remain both from the pre-communist period and from the communist period". For transition economies, implementing the precepts of IFRS, especially the concepts of 'fair-value', 'true-and-fair-view' etc is evidently difficult given their communist orientation which is markedly different to the market-economy assumed by IFRSs (Ball, 2006).

Developing economies struggle to implement IFRS for a variety of reasons. Extant literature suggests that language, underdevelopment of the accounting profession, inherent culture of secrecy and fraud, the need to educate the stakeholders on the new regulations and the lack of effort put into monitoring and enforcement (Chamisa, 2000; Larson and Street, 2004; Zeghal and Mhedbi, 2006; Peng, et al., 2008) as possible impediments to effective implementation of IFRS.

Although the above mentioned factors are prevalent in most developing counties, transition economies present an interesting case as the 'learning' required by accountants in those counties far exceeds that of their counterparts in developing countries that

adhear to common laws. For transition economies, IFRS presents not only a systemic change but a also a change in the mind-set of the people who are expected to operationalise the precepts. The continental European accounting model, characterised by emphasis on financial reporting conformity with tax regulations and conservatism (Vellam, 2004; Jermakowics and Gornik-Tomaszewski, 2006) poses a steep challenge for accountants in those countries to learn the principles-based paradigm advocated by IFRS.

The management literature on organisational change posits that the process of change is determined by two variables: the "density of administrative and technical competence" and the "leader's sense of urgency" (March, 1974). When both variables are high, the organisational change is generally mandated as 'execute now'. When either of the variables is diminished, the organisational change is expected to result only gradually.

Using the above meta-theory on organisational leadership and change, this paper attempts to analyse two of the transition economies, namely Russia and Kazakhstan, both of which had a sense of urgency to implement IFRS but had varying degrees of density of administrative and technical competence. Russia, the larger of the two, adopted the IFRS on a voluntary basis (possibly realising its lack of technical competence) allowing accountants to adapt to the learning process gradually. Kazakhstan on the other hand mandated the process (possibly overestimating its administrative and technical competence) of adoption of IFRS.

Compliance with IFRS is particularly important for transition economies to attract foreign investments to accomplish economic reforms. Shedrov and Sevastyanova (1998), note that compliance with IFRS is generally perceived as being provision of transparent and accurate information which is valued by foreign investors. Consequently, compliance with IFRS is expected to facilitate the inflow of foreign direct investments (FDI) to Russia and Kazakhstan (Alam and Banerji, 2000; Shedrov and Sevastyanova, 1998).

The purported benefits of IFRS however may be reduced substantially with non compliance. Ball (2006) noted that poor compliance due to inconsistent application of standards results in low comparability of financial reports, increases information costs and risks for investors and consequently impacts the international capital flow negatively. This implies that the ability of transitional regimes to learn new paradigms and the process by which such learning is broughabout are key to economic success.

When change is warranted, how does two different approaches (gradual vs mandated) to bringabout change compare against one another? This is the primary research question that this paper attempts to address. Herein it is argued that the degree of compliance with the precepts of IFRS in either case would evidence the degree of learning that the accountants have had under each of the approaches. Inorder to evidence compliance, IAS[2] 36 – Impairment of assets with specific reference to impairment of goodwil is chosen as an instrument.

The objective of IAS 36 - Impairment of Assets, is to ensure that assets are reflected in financial reports at values not exceeding their recoverable amount. In order to determine the recoverable amounts of assets, the standard requires extenisve application of the fair value concept (Wiecek and Young, 2010) which is rooted in the Anglo-Saxon accounting model requiring substantial exercise of judgement. For transition economies such as Russia and Kazakhstan, which originate from the communist economic model, the concept of 'fair value' is alien (Ichizli and Zacchea, 2000). In Soviet accounting, assets were valued at historical cost with rare revaluations, if any, being made under the control of the State (Paraszczak, 1978). During the communist era, the Russian and Kazakhstan accountants neither found a need for the 'true and fair view" concept, nor the need for transparent external financial reporting. (Ichizli and Zacchea, 2000; Nobes and Parker, 2004). Bailey (1995) remarked that the figure of profit reported under the Soviet accounting system was a mere residual amount left after the compilation of accounting records which carried little economic significance.

There is considerable support for the view that IFRS reporting is complicated and its requirements are time consuming to implement (Pawsey, 2010; United Nations Conference on Trade and Development (UNCTAD), 2008). The complexity is doubled in the cases of transition economies as accountants in these countries are required to orientate themselves with paradigms totally unfamiliar to them (Lopater, 2003) which is time consuming and achieved at a cost. To test the level of compliance in transition economies, this research intends analyzing the compliance patterns of IAS 36 as it encompasses the difficulties mentioned above. IAS 36 was perceived as one of the most complex and difficult standards to implement by 75% of the accountants surveyed in Belgium (Jermakowicz, 2004). A research by Larson and Street (2004) also indicate that problems with compliance are common in countries with underdeveloped market environments such as Bulgaria, Poland and Romania for the same reasons mentioned above.

Several studies provide evidence of deviations from IAS 36 requirements in various countries (Bepari, Rahman, and Mollik, 2011; Carlin and Finch, 2010b; Carlin, Finch, and Khairi, 2010; Carlin, Finch,

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[2] International Accounting Standards (IASs) were issued by the predecessor body of the International Accounting Standards Board (IASB). These standards are international financial reporting standards that were adopted by IASB when it took over in 2001 and as such they form part of the body of IFRS requirements (IASB, 2011c)

and Laili, 2009; Carlin, Finch, and Tran, 2010). These findings indicate that firms in Australia, Hong Kong, Malaysia and Singapore exhibited an inadequate level of compliance with disclosures concerning cash-generating units (CGU), discount and growth rates although they had commom law rootings and developed market infrastructures. It therefore presents a convincing argument for the use of IAS 36 as an instrument to measure the compliance and hence the learning in transition economies.

Accounting development in Russia

Since the collapse of the Soviet Union in 1991, Russia has been undertaking reforms to abandon the command economic principles to transit into a market oriented model. In July 1991 the Russian Parliament passed a legislation which paved the way for privatisation of state-owned enterpises (Joskow, Schmalensee, Tsukanova, and Shleifer, 1994). In January 1992, a Presidential decree released prices from the government control (Berkowitz, DeJong, and Husted, 1998) and by the end of 1994, the first phase of structural changes to the Russian business framework was completed giving it the semblance of a market economy (Vasiliev 2001). The introduction of a stock exchange, Russia's membership in International Organization of Securities Commissions (IOSCo) and its inclusion in international credit ratings in 1995, brought about increased attention to the need for accounting reforms (Vasiliev, 2001). In 1998, the Russian government launched the "Program for the Reformation of Accounting in accordance with International Accounting Standards" to convert Soviet accounting standards to conform with international practices (McGee and Preobragenskaya, 2004). Subsequently, the Russian Ministry of Finance developed Russian Accounting Standards (RAS), corresponding with IFRS as much as possible (Bogdan and Cristea, 2008). McGee and Preobragenskaya (2004) note that RAS significantly changed accounting practices in Russia with marked departures from its traditional accounting practices which included emphasis on disclosure of information as opposed to technical procedures, Introduction of terms hitherto unknown to Russian accountants such as "materiality", "contingency", "provisions" etc. and the concepts of 'substance over form' and 'fair value'. According to a recent survey involving 200 Russian firms, companies that prepared a second set of accounts complying with IFRS rules was found to have increased from 47% in 2009 to 61% by the end of 2011 (Baker, 2011). Economic statistics also show an increasing integration of Russian economy into global business and trade which can also be considered as a driver for the rising demand of IFRS. (Tarr and Volchkova, 2010).

McGee and Preobragenskaya (2005) also note that Russia opted for a 'gradual approach' in adopting international standards allowing companies to voluntarily prepare IFRS compliant reports on a 'as-needed-basis'. At present IFRS is not adopted in its entirety in the country. However, a voluntary preparation of IFRS-compliant reporting is permitted in addition to mandatory RAS-compliant financial reports (Deloitte, 2011).

There are a number of considerations that favored the gradual approach to IFRS adoption in Russia. In 2004, the Task Force on Implementing IFRS, organised by Organization for Economic Cooperation and Development (OECD), recommended it as it believed that the sheer size of the Russian economy would not allow an accelerated implementation ("The Russian Corporate Governance Roundtable," 2004). The gradual approach was also supported by major audit firms operating in Moscow (Gregson, 2008). The lack of qualified personnel was a further factor that favoured gradual adoption. Vaynshteyn (2009) and Bagaeva (2010), reckoned that the gradual adoption process would avail the time required for Russian accountants to be trained in making professional judgements. The significant financial resources required for the transition was also cited as yet another reason for this approach as it would allow spreading the implementation costs over a longer period (Vaynshteyn, 2009). McGee and Preobragenskaya (2005) attributed the selection of this strategy to the fact that the local security market is still in its infancy and demand for IFRS reporting had only started to increase recently.

Accounting development in Kazakhstan

Kazakhstan gained its independence in 1991 after the collapse of the Soviet Union. In the aftermath, the demise of its central planning model caused a fall in its output which was primarily produced by industries under the federal jurisdiction (DeMelo, Denizer, and Gelb, 1996; Pomfret, 2007; Myant and Drahokoupil, 2008). In order to reverse the downward trend in the economy the government opted for a fast track transition to a market-based economy (Havrylyshyn, 2001; Irnazarov, 2009).

In the course of its reforms in the financial sector, the Kazakhstan Accounting Standards (KAS) were developed, which were used by all business entities prior to adopting IFRS in 2006.

Kazakhstan fully adopted IFRSs in 2006 to accelerate its integration into the global economy (Tyrrall, Woodward, and Rakhimbekova, 2007). The adoption was considered an important component in enhancing competitiveness of local firms and to avail loans from offshore financial institutions (Gielen et al., 2007). The accounting legacy inherited from the Soviet era, coupled with the constraints suggested for Russia earlier in this paper, equally applied to Kazakhstan impeding its quest for rapid transformation. Particularly, the transition to IFRS was problematic as the stock exchange of Kazakhstan (KASE) was in its infancy with only 100 firms (10%

of private sector firms in the country) were being listed as of 2006. This, coupled with the fact that most of these firms were state-owned, reduced the need for high quality transparent financial reports. Tyrrall et al. (2007) suggested that under these conditions, the relevance of IFRS to Kazakhstan was low for firms that operated domestically.

Motivation and contribution

Transitional economies are unique as they, unlike those in the Anglo-Saxon world, are required to adopt paradigms which are completely alien to them. The true impact of their transition to market-based economies can therefore be objectively viewed in these cases.

While considerable studies deal with transition economies in isolation (Chamisa, 2000 in Zimbabwe; Hassan, 2008 in Egypt; Ballas,et.al., 2010 in Greece; Peng and van der Laan Smith, 2010 in China; Albu, et.al., 2011 in Romania; Phi Anh and Nguyen, 2013 in Vietnam), comparative studies between transition economies are rare. The present study notes that while Russia chose a gradual approach, Kazakhstan employed a rapid strategy to transition into market economy and consequently the adoption of IFRS. These accounting settings provide a unique opportunity to investigate the levels of compliance in the contexts of two very similar post-communist countries with contrasting strategies to IFRS adoption.

For the above reasons, it is of research interest to examine the level of compliance with IFRS with IAS 36 as its proxy, both in Russia and Kazakhstan. The findings of which will provide useful information for policy makers in both countries and academics in general on the dynamics of organisational change process achieved though voluntary and mandated impositions.

In addition, previous attempts by researchers investigating the level of compliance with IAS 36 have been confined to the Anglo-Saxon accounting environments (Carlin and Finch, 2010; Carlin et al. 2009; Carlin, Finch and Tran, 2010; Carlin, Finch and Khairi, 2010; Massoudi et al. 2010 and Bepari et al.2011). An extensive search of IFRS related literature did not find any studies that empirically investigated compliance with IAS 36 in transition economies or a comparison thereof with similar economic environments. This paper is hence a pioneering effort to investigate the gap that exists in literature. Further, this paper refines the method employed by Bepari et al. (2011) to include an assessment of the appropriateness of the discount rates used by Russian and Kazakhstan accountants for a more granular assessment. Consequently, this research is more rigorous than the previous attempts in this genre. Accordingly, the following research questions are addressed in this paper:

1. Was there a change in the levels of compliance with the disclosure requirements of IAS 36 for goodwill impairment testing by Russian and Kazakhstan firms over 2007-2008-2009? – evidence of a positive change year-on-year will indicate the extent to which companies in each of the countries have imbibed the new paradigm which we argue as testimonious of learning.

2. Was there a difference in the levels of compliance with the disclosure requirements of IAS 36 for goodwill impairment testing between Russian and Kazakhstan firms in 2007-2008-2009? – evidence of any differences between the countries year-on year would shed light on the effectiveness of the approaches taken by the respective countries.

3. Was there an association between the levels of compliance with the disclosure requirements of IAS 36 for goodwill impairment testing and firm-specific factors over the periods 2007-2008-2009 in Russian and Kazakhstan firms? – Evidence of which will indicate whether firm-specific factors play a deterministic role in the change process.

The rest of the paper is structured to include literature review, hypothesis development, description of the research sample and methodology followed by results and discussion

2. Literature Review

According to IAS 36, an asset is considered impaired if its carrying amount exceeds its recoverable amount. The recoverable amount of the asset is the higher of its fair value less costs to sell in an active market and the value in use, which is the present value of the future cash flows discounted with an appropriate rate. Evidently, goodwill impairment testing mandates complex procedures to be performed and disclosed. These disclosures include (IASB, 2011):

1. A description of CGU(s). This disclosure is important as it provides information on business prospects of CGUs to which goodwill relates.

2. The carrying amount of goodwill allocated to CGU(s). This information allows tracing allocated goodwill to specific CGU(s).

3. A method selected to determine a recoverable amount of CGU

4. If selected method is fair value less costs to sell, a description of key assumptions used in its determination.

5. If selected method is value in use, the growth and discount rate(s) applied to projected cash flows and a description of key assumptions used to estimate future cash flows.

A number of studies that deal with IAS 36 extoll the advantages of complying with its contents. Wines, Dagwell, and Windsor (2007) noted that the new goodwill impairment testing regime is more closely aligned with an actual assessment of asset value than an arbitrary 'cost less amortization' method which was followed previously. A similar argument was also put forward by the Financial Accounting Standard Board (FASB) that the Statement of Financial

Accounting Standard 142, analogues of IAS 36, would lead to a better reflection of underlying economics of the acquired assets in the financial statements (FASB, 2001).

Despite the purported advantage of the standard, there are manay reasons that could deter managers from from complying with them. Wines et al.,(2007) argue that IAS 36 has introduced a potential for creative accounting as the evaluation of future cash flows is subjected to a substantial degree of discretion suggesting the application of the standard may be quite different to its prtescription . Watts (2003) noted that leeway available in calculating asset's value-in-use may be used by managers to delay or advance impairment write-offs by applying arbitrary discount and growth rates to future cash flows.

Beatty and Weber (2006) investigating the association between impairment write-offs of firms and earnings based incentives argue that managers would take impairment write-off decisions only if they are not affected by these incentives. In a similar vein, Guler (2007) found that goodwill impairment losses were less likely to be recognized if managers had significant holdings in 'in-the-money' stock options and bonus incentives. These findings are consistent with Agency Theory that predicts that managers are likely to use the discretion available in accounting choices in a manner that increases their personal wealth (Jensen and Meckling, 1976) and hence refrain from complying.

Ramanna (2008) examined whether unverifiable discretion inherent in IAS 36 is used opportunistically and if so what firm characteristics increase the likelihood of such discretion. The author found evidence that firms with numerous business segments and higher market-to-book ratios and higher ratios of assets without observable market values were more likely to exercise such discretion. Similar opportunism was also found to exist in the study by Godfrey and Koh (2009) who investigated the relationship between goodwill write-offs and firms' investment opportunities and concluded that increase in investment opportunities was associated with smaller impairment charges. Vichitsarawong (2008) on the other hand found that goodwill impairment signaled a decrease in relative efficiency of firms, thus confirming the usefulness of goodwill impairment numbers in reflecting underlying economics of firms but implying that it is yet another reason for non compliance by managers. Similar inference also could be made from the findings of Li, Shroff, Venkataraman, and Zhang (2010) who report that impairment losses are negatively associated with revenue and profit in subsequent years consistent with results of Vichitsarawong and Hirschey and Richardson (2002) who found the effect of revelation of impairment losses was negative and material at about 2-3 percent of firms' share price.

The question of compliance with goodwill impairment disclosure requirements as prescribed by

IAS 36 was investigated in Australia (Carlin and Finch, 2010b) , Malaysia (Carlin et al. 2009) Hong Kong (Carlin, Finch, and Tran, 2010) and Singapore (Carlin, Finch, and Khairi, 2010) using the same method in all four studies with results strikingly consistent across the countries researched. For example, a significant number of firms in all four countries failed to provide information to allow reconciliation of goodwill allocated to CGUs with total reported goodwill. A large proportion of firms in Malaysia and Singapore did not define CGUs and the methods used to estimate recoverable amounts attributable to CGUs. Poor compliance with requirements to disclose discount and growth rates was also exhibited by firms in the countries investigated.

Carlin et al.(2009), Carlin and Finch (2010b), Carlin, Finch, and Khairi (2010) and Carlin, Finch, and Tran (2010) suggested that deviations from disclosure requirements can be explained by the difficulties experienced by firms due to the complexity of the accounting standard. An alternative explanation could be that the non-compliance was a product of opportunistic behavior on the part of managers by a tendency to define larger rather than smaller CGUs, which leads to lower likelihood of impairment losses. (Lonergan, 2010). Similarly, unwillingness to disclose discount and growth rates is deemed to be associated with managers' desire to manipulate impairment charges (Carlin and Finch, 2010b).

The complexity of the accounting standard that deters full compliance can be argued to be a direct result of 'learning' in transition economies, especially for countries from the former Soviet-bloc. Gurkov and Kuz'minov (1995) in a survey to identify the learning-order priorities amongst middle managers in Russia find 'Accounting' to be the most important subject that managers desire to have additional training in. The authors conclude that this is so because, in Russia, learning of 'accounting' in the workplace is mainly facilitated by a 'mentor' approach where "a chief accountant transmits 'professional secrets' to the most able and devoted bookkeepers" instilling the character of 'learning by doing'.

Due to the 'learning by doing' approach, accountants in former communist countries such as Poland, Czech Republic and Romania have demonstrated the persistance of communist mentality with knowledge and skills gained prior to the transition, prefering more 'prescriptive' regulation and less coices in accounting treatments (Vellam, 2004).

IAS 36 is a suitable proxy to analyse the effectiveness of learning among accountants in transition economies as it contains little prescription. The compliance patterns between years and between the countries chosen in this paper will hence reveal the adaptability to 'pricipal based' approaches by

accountants and the effectiveness of implementation approaches adopted by the respective States.

Massoudi et al. (2010) and Bepari et al. (2011) constructed 'compliance-scores' to measure the level of firm compliance with IAS 36 which revealed that the level of compliance depended on the type of auditor, ownership concentration, goodwill intensity, firms' profitability and type of industry. In this research, we adopt the method advocated by Bepari et al. (2011) with modifications to answer the following research hypotheses.

3. Hypothsis Development

Examination of the level of compliance by Russian and Kazakhstan firms over 2007-2009

Compliance with a complex standard such as IAS 36 can be reasonably assumed to improve over time with managers and accountants gaining familiarity. Hence longitudinal measures of compliance provide greater insights in comparison with snap-shot analyses. This study suggests that in the context of transitional economies personnel training efforts may have positively influenced the transparency of accounting information and hence it is possible that in Russia and Kazakhstan compliance with IAS 36 could have improved over the years. In order to examine the longitudinal changes, the standard null hypothesis in such situations is to hypothesize that there is no difference between the levels of compliance over the consecutive years. Accordingly, the following hypothesis is formulated to address the first research question.

Hypothesis 1: the level of compliance with IAS 36 disclosure requirements for goodwill impairment testing by firms in Russia and Kazakhstan has changed during the overall period 2007 to 2009 and in the sub periods 2007-2008 and 2008-2009.

Comparison of the levels of compliance between Russian and Kazakhstan firms over 2007-2009

This study finds the accounting settings in Russia and Kazakhstan provide a unique opportunity to compare the levels of compliance in the contexts of (a) transitional economies; (b) divergent approaches to IFRS adoption. While the mandatory adoption of IAS 36 in Kazakhstan leads one to believe that the compliance levels will be higher, it is also possible that Russian firms could surpass this expectation due to the voluntary nature of their adoption. In order to investigate this aspect longitudinally, the following hypothesis is formulated:

Hypothesis 2: the levels of compliance with IAS 36 disclosure requirements for goodwill impairment testing by Russian firms are different from the levels of compliance by Kazakhstan firms in each of the years 2007; 2008;2009.

Several studies on compliance with IFRS indicate that the levels of compliance by firms in various countries are associated with firm characteristics (Owusu-Ansah, 2005; Naser, Alkhatib, and Karbhari, 2002; Bepari et al. 2001). It is therefore essential to consider firm-specific factors that influence compliance with IAS 36 to interpret the compliance levels envisaged in hypotheses (1) and (2). In this study we examine the impact firm-specific factors such as goodwill intensity, firm-size and profitability on the levels of compliance by Russian and Kazakhstan firms to interpret the results of hypotheses (1) and (2).

Previous research findings regarding the impact of firm size on levels of compliance provide mixed results. Findings by Ballas and Tzovas (2010) on Greek firms and Owusu-Ansah (2005) on New Zealand firms support the notion that the level of compliance is higher for large firms as they are resourceful and are pressured to do so by external forces. Street and Gray (2002) however, did not find firm size to be associated with the level of compliance by firms drawn from 32 countries. Bepari et al. (2011) on the other hand, found that firm size was related to the compliance level by Australian firms but only when other industry variables were not controlled. Given that large firms in Russia and Kazakhstan are capable of hiring skilled personnel, engaging services of the Big-4 audit firms and are more likely to raise or borrow money from overseas, this study expects a higher level of compliance by those firms. Hence, it could be conjectured that larger firms may exhibit a higher level of compliance than smaller ones.

According to Bepari et al. (2011) the level of compliance with IAS 36 disclosure requirements is associated with goodwill intensity which is measured as a percentage of goodwill to total assets. The authors suggest that firms with larger proportions of goodwill were more motivated to disclose information than firms with smaller proportions of goodwill. In line with this finding, this paper seeks to identify whether a similar position exists in Russia and Kazakhstan.

Inchausti (1997) suggests that more profitable firms have incentives to signal 'good news' and therefore they provide more transparent reporting than firms with 'bad news'. However, Wallace, Naser and Mora (1994) and Dumontier and Raffournier (1998) observed no association of profitability with the level of compliance by Spanish and Swiss firms. Recent empirical studies by Owusu-Ansah (2005) and Bepari et al. (2011) provide evidence that profitability was positively associated with levels of compliance by New Zealand and Australian firms. In this study we posit that more profitable firms in Russia and Kazakhstan would be motivated to exhibit greater

transparency and hence greater compliance, to communicate a favourable message.

In summary, the testing of hypotheses developed in this study would establish whether increasing familiarity with IAS 36 resulted in positive changes in the level of compliance by Russian and Kazakhstan firms over time; and whether firm-specific factors such as firm size, goodwill intensity and profitability had significant association with the levels of compliance by firms. The comparison of the levels of compliance between Russian and Kazakhstan firms may provide evidence of success in contrasting approaches to IFRS adoption.

4. Data, Definitions and Design

In order to address the research questions, this study used published on-line financial reports prepared under IFRS rules for years 2007, 2008 and 2009 of listed companies in Russia and Kazakhstan.

Since this study's intention was to compare the levels of compliance within and between the countries, the period of investigation starting from 2007 was selected corresponding with the mandatory adoption of IFRS by Kazakhstan firms. The voluntary IFRS reports of Russian firms were then compiled and compared against the same period. The first year of IFRS adoption in Kazakhstan was excluded from the research period as it may not be representative due to the difficulties of first-year implementation. Similarly year 2010 was also excluded to keep this report comparable with the three-year window that has been adopted by the compliance studies referred to earlier. Upon screening the financial reports of Russian and Kazakhstan firms over 2007 to 2009, for those that had continuous trading records that carried a non-zero value as goodwill, the total number of firms meeting the above mentioned criteria was found to be 37 and 17 respectively. The details of the screening are provided in Table 1 below.

Table 1. Selection of Russian and Kazakhstan firms

	RTS	KASE
Total number of firms listed on stock exchange as at 1/01/2009	227	96
Minus firms whose reports were unavailable	22	4
Minus firms that did not prepare reports under IFRS	72	0
Minus firms that did not have goodwill in each year over 2007-2009	96	75
Total number of firms included into research sample	37	17

Source: (KASE, 2011; RTS, 2011)

The resulting sample comprised 111 and 51 firm-year observations over the period of three years for Russian and Kazakhstan firms respectively. For comparative purposes, the reporting currency of Kazakhstan firms (Tenge) was converted to Rubles (Russian currency) at the year-end exchange rates to correspond with the Russian firms.

To investigate the level of compliance and to build a basis for comparison over the years and between the countries, a compliance score was computed for each company in each of the years from 2007 to 2009. The following disclosure requirements of IAS 36 goodwill impairment testing were coded either one (1) or zero (0) to calculate the compliance scores consistent with the method used by Bepari et al. (2011).

1. Disclosure of CGUs defined for the purpose of impairment testing. If disclosed, this item was coded 1; if not disclosed 0.

2. Compliance with the requirement that goodwill allocated to CGUs can be reconciled with total goodwill on the balance sheet. This item was coded 1 if compliant; 0 if non-compliant.

3. Disclosure of the method to estimate the recoverable amount of CGUs. This item was coded 1 if disclosed; if not disclosed 0.

4. Disclosure of growth rates applied to projected cash flows of CGUs. If growth rate(s) was disclosed, this item was coded 1; if not disclosed 0.

5. Disclosure of discount rates applied to projected cash flows of CGUs. If discount rate(s) was disclosed, this item was coded 1; if not disclosed 0.

IAS 36 paragraph (A: 17) suggests that the Capital Asset Pricing Model (CAPM) to be used as a starting point in the determination of an appropriate discount rate to assess the value in use for goodwill. Although the subsequent paragraphs of IAS 36 suggest refinements of this value, given the lack of experience that accountants in transitional economies would have had in value judgments, this research expects that as a minimum, the accountants would have based their assessment of an appropriate discount rate using CAPM. Hence, in addition to the model suggested by Bepari et al. (2011), this research, we checked the discount rates disclosed by firms against a discount rate independently derived by us using Capital Asset Pricing Model (CAPM). Accordingly, companies that disclosed a higher discount rate than the independently computed rate were assigned an extra 1(one) to account for the quality of discount rate used by managers. Carlin and Finch (2010a) note that IAS 36 places great emphasis on discounted cash flow (DCF) as the basis to estimate asset recoverable amount and suggest that the use of CAPM is the preferred method to estimate an appropriate discount rate as it represents the current market assessment. Evidently, discount rates are key elements in determining the extent of recognition of losses as inappropriately low discount

rates applied to projected future cash flows would lead to a lesser likelihood of impairment charges being recognized. Given the importance of discount rates, the measure of their appropriateness was included in the calculation of compliance scores by the following process.

6. Appropriateness of disclosed discount rates applied to projected cash flows of CGUs. If discount rates were greater than those independently derived using CAPM, this item was coded 1; if discount rates were smaller than those derived from CAPM this item was coded 0.

In order to benchmark the appropriateness of discount rates, this study used the following CAPM formulas to derive the benchmark discount rates for Russia and Kazakhstan.

$$R_{jRus} = [R_{mRus} - R_{fRus}] * \beta_{jRus} + R_{fRus} \qquad (1)$$
$$R_{jKaz} = [R_{mKaz} - R_{fKaz}] * \beta_{jKaz} + R_{fKaz} \qquad (2)$$

Where R_{jRus} and R_{jKaz} are expected rates of returns and, $[R_{mRus} - R_{fRus}]$ and $[R_{mKaz} - R_{fKaz}]$ are market risk premiums for Russia and Kazakhstan respectively. Due to the relatively short history of the existence of capital markets in these countries, there are no reliable estimates of market risk premiums available for Russia and Kazakhstan. Hence, this study uses estimates used by Sinadskiy (2003) and Teplova (2005) which equal to 7.76% over the period 2007-2009. This study notes that it was impossible to identify individual betas for either firms or industries in Russia and Kazakhstan as markets in these countries did not provide sufficient data to calculate credible estimates. Ruzhanskaya (2005) also observed that the Russian capital marker had little history and was subject to high volatility, which makes calculation of firm-specific beta impracticable. Hence, using country betas (equal to 1) and estimates of risk-free rates based on Government bonds in Russia (4.8%, 5.9% and 8.6% for 2007, 2008 and 2009 respectively) (*Рынок государственных ценных бумаг*, 2011a) and Government bonds in Kazakhstan (5.5%, 5.8% and 6.7% for 2007, 2008 and 2009 respectively) (*Рынок государственных ценных бумаг*, 2011b), the following benchmark returns were estimated. *RjRus* for Russian market; 12.56% for 2007; 13.66% for 2008 and 16.36% for 2009. *RjKaz* for Kazakhstan market; 13.26% for 2007; 13.56% for 2008 and 14.46% for 2009.

Computation of total compliance score

The total compliance score for a firm represents the sum of items that were disclosed. It should be noted that IAS 36 allows using either 'value in use' or 'fair value less costs to sell' to determine the assets recoverable amount. If a firm selects the latter method it may not use discount or growth rates when estimating recoverable amounts of assets. In order not to penalize firms using 'fair-value less cost-to-sell' method (or to prevent firms that use DCF to have

an advantage from the improved coding system proposed herein), each score was scaled by dividing the total score of each firm by the number of applicable categories using formula (3), consistent with Bepari et al. (2011).

$$CS_{yt} = \frac{\Sigma A_{yt}}{\Sigma B_{yt}} \qquad (3)$$

Where the CS_{yt} represents the scaled compliance score for firm y in year t; ΣA_{yt} is a total of disclosed items by firm y in year t; and ΣB_{yt} is total of applicable categories for firm y in year t.

Measures of corporate factors (independent variables)

The following definitions were employed in the determination of firm-specific factors to examine their association with the level of compliance.

Goodwill intensity GI_{yt} for firm y in year t is calculated as a ratio of goodwill GW_{yt} of firm y in year t to total assets TA_{yt} for firm y in year t as prescribed by Bepari et al. (2011).

$$GI_{yt} = \frac{GW_{yt}}{TA_{yt}} \qquad (4)$$

Size for firm y in year t is calculated as absolute value of total assets for firm y in year t as supported by Ballas and Tzovas (2010); Morris, Voronina, and Gray (2006) and scaled to its logarithmic value to control for heteroscedasticity;

$$Size_{yt} = LnTA_{yt} \qquad (5)$$

Profitability P_{yt} for firm y in year t is calculated as a ratio of net profit NP_{yt} of firm y in year t to total assets TA_{yt} for firm y in year t as supported by Owusu-Ansah (2005) and Camfferman and Cooke (2002);

$$P_{yt} = \frac{NP_{yt}}{TA_{yt}} \qquad (6)$$

In order to examine the differences in the levels of compliance by Russian and Kazakhstan firms over 2007-2008-2009 (hypothesis 1) the present study employed non-parametric Wilcoxon Signed Rank Test. Ho (2006) notes that this test is appropriate when there is a violation of the normality assumption. Accordingly tests for normality for the variables were conducted to justify the use of Wilcoxon Signed Rank Test. For the examination of the differences in the level of compliance between Russian and Kazakhstan firms over 2007-2008-2009 (hypothesis 2), Mann-Whitney-U test was employed. Hart (2001) suggests this test as an alternative to t-test when the data distribution is not normal. Also Ho (2006) notes that Mann-Whitney test is appropriate for two independent samples where the measurement of data is ordinal. As data in the research sample satisfies the above mentioned criteria Mann-Whitney-U test was employed to address the second research question. The descriptive statistics of the compliance scores are presented below.

Table 2. Descriptive statistics of compliance scores for Russian and Kazakhstan firms

	Number	Mean	Standard deviation	Min	Max
Russian firms compliance score 2007	37	0.5714	0.3855	0	1
Russian firms compliance score 2008	37	0.77	0.2609	0	1
Russian firms compliance score 2009	37	0.6841	0.2652	0	1
Kazakhstan firms compliance score 2007	17	0.3876	0.3086	0	1
Kazakhstan firms compliance score 2008	17	0.5082	0.3303	0	1
Kazakhstan firms compliance score 2009	17	0.6253	0.3261	0	1

Descriptive statistics show that although there had been an overall increase in the mean of compliance scores for Russian and Kazakhstan from 2007 to 2009, the steady sub-period increases found in Kazakhstan firms is not mirrored in Russia. Russian firms' compliance scores increased in 2008 but declined in 2009, while the mean of Kazakhstan firms steadily rose over 2007-2009. This may indicate that Russian firms' compliance was more volatile than compliance by Kazakhstan firms over the research period. Also, standard deviations for Russian firms show that the distribution of compliance scores was less clustered in 2007 compared to 2008-2009 while

the spread of distribution of compliance scores by Kazakhstan firms remained relatively stable over 2007-2009.

To infer the role that firm-specific variables on levels of compliance, this research uses a generalised ordered logit model (GLM). Since the dependent variable (compliance score) is an ordinal measure, adoption of a logistic regression model was deemed appropriate as it provides a more parsimonious and interpretable model than other corollary models while preserving the multilevel coding scheme of the dependent variable (Williams, 2006).

Table 3. Descriptive statistics for Russian firm-specific variables

	Number	Mean	Standard deviation	Min	Max
Russian firm size 2007	37	461.22	1,383.72	1.36	6,792.56
Russian firm size 2008	37	571.44	1,663.10	2.54	7,168.57
Russian firm size 2009	37	609.84	1,832.50	2.69	8,363.22
Russian firm GW intensity 2007	37	0.0458	0.07192	0	0.38
Russian firm GW intensity 2008	37	0.0413	0.06339	0	0.34
Russian firm GW intensity 2009	37	0.0419	0.06327	0	0.29
Russian firm profitability 2007	37	0.0765	0.06469	-0.03	0.21
Russian firm profitability 2008	37	-0.0019	0.32598	-1.81	0.35
Russian firm profitability 2009	37	0.0424	0.15468	-0.65	0.39

Note: Russian firm size expressed in billion Ruble. Abbreviation: GW stands for Goodwill.

Table 4. Descriptive statistics for Kazakhstan firm-specific variables

	Number	Mean	Standard deviation	Min	Max
Kazakhstan firm size 2007	17	232.04	339.85	0.36	1,076.48
Kazakhstan firm size 2008	17	269.61	431.29	0.34	1,615.34
Kazakhstan firm size 2009	17	326.07	592.70	0.35	2,328.75
Kazakhstan firm GW intensity 2007	17	0.0235	0.03856	0	0.15
Kazakhstan firm GW intensity 2008	17	0.0147	0.01875	0	0.06
Kazakhstan firm GW intensity 2009	17	0.0312	0.07889	0	0.33
Kazakhstan firm profitability 2007	17	0.0547	0.04849	0	0.19
Kazakhstan firm profitability 2008	17	-0.0035	0.18858	-0.54	0.27
Kazakhstan firm profitability 2009	17	-0.0376	0.1523	-0.58	0.11

Note: Kazakhstan firm size in billion Ruble (Ruble: Tenge = 1: 4.75); Abbreviation: GW stands for Goodwill.

Tables 3 and 4, detail the descriptive statistics of firm-specific variables that are used in this study. Standard deviations show that dispersion of Russian firms' goodwill intensity variable was greater than that of Kazakhstan firms. In light of evidence provided by Bepari et al. (2011) it is possible that there exists a relationship of Russian firm goodwill intensity with the level of compliance. Also, the increasing trends in firm size over three years in both countries may indicate that the level of compliance

had changed over the period warranting an investigation of its role in the level of compliance. Descriptive statistics also show that the means of profitability in both countries are volatile.

5. Results and Discussion

Discussion on the changes in the level of compliance by Russian and Kazakhstan firms over 2007-2008-2009 (hypothesis 1).

The purpose of this research hypothesis was to determine whether there was a change in the levels of compliance by Russian and Kazakhstan firms over 2007-2008-2009.

Table 5. Wilcoxon Sign Rank test results on the statistical significance of the changes in the level of compliance by Russian and Kazakhstan firms over 2007-2008-2009

Compared periods	# of positive ranks	# of negative ranks	p value
Russian scores 2008-Russian scores 2007	16	4	0.004***
Russian scores 2009-Russian scores 2008	2	12	0.003***
Russian scores 2009-Russian scores 2007	**14**	**9**	**0.071***
Kazakhstan scores 2008-Kazakhstan scores 2007	6	2	0.158
Kazakhstan scores 2009-Kazakhstan scores 2008	4	1	0.078*
Kazakhstan scores 2009-Kazakhstan scores 2007	**10**	**1**	**0.026****

*** significant at 1%;** significant at 5%;*significant at 10%; # stands for "number"

The results of Wilcoxon Signed Rank tests in table 5 show that p-values are statistically significant for compliance scores for Russian firms for the overall period between 2007 and 2009 and for the sub periods. Hence, this study rejects the null hypothesis and accepts the alternative that there were differences in the levels of compliance by Russian firms in each of the periods investigated. However, the numbers of positive and negative ranks in each of the periods investigated provide mixed results with an increase in the sub period between 2007 and 2008 followed by a decrease in the next period.

The test results for Kazakhstan firms however indicate the presence of a steady increase in compliance levels although the p-value for the sub period 2007-2008 was not significant. Based on the statistically significant results for the positive ranks

for the overall period, this study concludes that there had been an overall increase in the level of compliance by both Russian and Kazakhstan firms between 2007 and 2009.

The results found herein are consistent with the findings of Bepari et al. (2011), who found a positive trend in the levels of compliance by firms in Australia. A similar improvement in compliance levels over time was also observed by exploratory studies by Carlin and Finch (2010b) in Australia and by Carlin, Finch, and Khairi (2010) in Singapore.

While the increase in levels of compliance in both countries can be attributed to the expertise that the managers would have gained over time and hence their adaptability to change, the temporary decline in compliance during the sub period 2008-2009 in Russian companies begs clarification.

Table 6. Russian and Kazakhstan firms' compliance with IAS 36

Compliance categories	# of compliant firms			Growth in compliant firms		
Russia	2007	2008	2009	2007-2008	2008-2009	2007-2009
Disclosure of definition of CGUs	26	34	33	+ve	-ve	+ve
Reconciliation of goodwill to CGUs with total	19	22	23	+ve	+ve	+ve
Disclosure of estimation method for recoverable amount of CGUs	23	30	30	+ve	No change	+ve
Disclosure of growth rates applied to projected cash flows of CGUs	24	33	29	+ve	-ve	+ve
Disclosure of discount rates applied to projected cash flows of CGUs	19	24	21	+ve	-ve	+ve
# of companies with disclosed discount rates higher than CAPM derivation	13	22	12	+ve	-ve	No change
# of companies with disclosed discount rates lower than CAPM derivation	6	2	9	-ve	+ve	+ve
Kazakhstan						
Disclosure of definition of CGUs	7	9	11	+ve	+ve	+ve
Reconciliation of goodwill to CGUs with total	11	13	14	+ve	+ve	+ve
Disclosure of estimation method for recoverable amount of CGUs	12	14	14	+ve	No change	+ve
Disclosure of growth rates applied to projected cash flows of CGUs	6	8	11	+ve	+ve	+ve
Disclosure of discount rates applied to projected cash flows of CGUs	1	1	4	No change	+ve	+ve
# of companies with disclosed discount rates higher than CAPM derivation	1	1	3	No change	+ve	+ve
# of companies with disclosed discount rates lower than CAPM derivation	0	0	1	No change	+ve	+ve

As can be seen from Table 6, the diminished level of compliance during this sub period arose mainly due to a 12% decline in the number of firms complying with the standard in 2009 compared with 2008 in two respects; disclosure of growth and discount rates applied to projected cash flows of CGUs. We opined that such a breach of the standard would have elicited a qualified statement from the auditors of the company suggesting reasons for the breaches. Although 35 out of the 37 companies in Russia were audited by the Big-4 audit firms, none received any qualified report, precluding the possibility of understanding the reasons for the decline. Although surprised, we find this to be consistent with findings in Australia where obvious breaches of IAS 36 did not result in formal statements by audit firms (Carlin and Finch, 2010b). Since inference of reasons for the non compliance is not possible within the ambit of this research, we offer the following explanations for the non compliance in 2009 based on findings in extant literature: (a) The marginal decrease in the number of companies disclosing the basis by which they had define their CGUs suggests the possibility that managers could have revised their initial definition of CGUs but failed to disclose the basis adopted for such revision; (b) managers could have resorted to opportunistic behaviour suggested by Ramanna (2008) and

Godfrey and Koh (2009) which can be argued to be a strong possibility given that between 2008 and 2009, there was a 350% increase in companies that chose a discount factor lower than the CAPM value; (c) it is also possible that there could have been patches of resistance as identified by Carlin and Finch (2010b), Carlin et al., (2009), Carlin, Finch, and Khairi (2010) and Carlin, Finch, and Tran (2010). It is hence possible to conjecture that some Russian managers could have used substantial discretion available in IAS 36 opportunistically.

In summary, the findings above indicate that on the overall, compliance by Russian and Kazakhstan firms has improved over 2007-2009 although, the proportion of firms that exhibited a high level of compliance was somewhat low in both countries. The evidence evince that accountants in both countries were adapting to the new paradigm positively over the period although the approaches taken to bring about the change varied between the Sates.

Discussion on the differences in the level of compliance between Russian and Kazakhstan firms over 2007-2008-2009 (research hypothesis 2).

In order to compare the country level compliance between Russia and Kazakhstan, Mann-Whitney U test was employed the results of which are presented below.

Table 7. Mann-Whitney U test results on the statistical significance of the difference in the level of compliance between Russian and Kazakhstan firms over 2007-2008-2009

Pairs	Mean rank Russia	Mean rank Kazakhstan	p value
Russian firms 2007-Kazakhstan firms 2007	30.35	21.29	0.045**
Russian firms 2008-Kazakhstan firms 2008	31.51	18.76	0.005***
Russian firms 2009- Kazakhstan firms 2009	28.12	19.68	0.066*

*** significant at 1%;** significant at 5%;*significant at 10%

The results of Mann-Whitney U test show that p-values are statistically significant for each of the periods under investigation. Therefore this study rejects the null hypothesis and accepts the alternative that there was a difference in the levels of compliance between Russian and Kazakhstan firms in each of the years from 2007 to 2009. The average ranks of Russian firms are higher than that of Kazakhstan firms in each of the years indicating higher level of compliance by Russian firms over Kazakhstan firms. The present study argues that the differences in the levels of compliance between Russian and Kazakhstan firms can be explained by divergent approaches to IFRS adoption and the institutional characteristics that are distinguishable between the countries. From the information available, it is possible to conjecture that voluntary adopters would have had greater incentive to comply than those who were mandated to do so. Given that both countries had similar economic settings such as post-communist accounting regimes, fledgling capital markets, and the need for foreign investments, the differences in their

levels of compliance can be reasonably attributed to the adoption strategies that were put in place.

We draw the above conclusion based on the fact that the present regulations influencing IAS 36 is similar in both countries. Both Russia and Kazakhstan do not permit fair value accounting and there are no equivalent national standards corresponding to IAS 36. Both countries amortise their goodwill over 20 years on a straight line basis which is regulated by the respective tax regimes (Sosnauskene, 2008; World Bank, 2007; KPMG, 2005). The differences in compliance levels, despite the similarities in circumstances, can be explained by the process that each country had adopted to learn the new paradigm. Developing and transition countries that voluntarily adopt new paradigms appear to exhibit superior compliance levels than those that mandate as evidenced by Peng, et al, 2008; Peng and van der Laan Smith, 2010 and Qu and Zhang, 2010 in the case of China. On the otherhand, high rates of non-compliance were found in Kuwait and Pakistan which manated the adoption process (Mir and Rahaman, 2005).

In summary, evidence from this research suggests that although learning of the new paradigm has taken palace in both countries over the period of evaluation, Russia, which adopted the process voluntarily, appears to have had greater learning than Kazakhstan.

The above conclusion can be challenged on the grounds that organisational characteristics that are relevant to the adoption of IFRS could have played a part in determining the levels of compliance. It can be argued that the increased level of compliance in Russia could be attributed to factors such as firm-size, goodwill intensity and profitability which directly influence the decisions on CGU formation and impairment.

Firm-size is considered as a pertinent factor in compliance studies (Ballas and Tzovas, 2010; Owusu-Ansah 2005) as it is believed that larger firms would have the means and motives to comply with accounting standards. Larger firms also can be argued to have greater number of business segments permitting the formation of CGUs than smaller firms.

Although extant literature fails to provide conclusive evidence on the nature of influence that goodwill intensity has on compliance levels (Bepari et al. 2011), the general expectation is that firms with

greater goodwill intensity would have sufficient motivation to comply with the accounting standard than those without. Given that the presence of goodwill is a necessary condition in the context of this research, we posit that firms with larger goodwill intensities would exhibit greater compliance levels.

Prior literature suggests that profitability lends to opportunistic behaviour on the part of managers in impairment decisions (Inchausti, 1997; Owusu-Ansah 2005; Bepari et al.2011). The need to bolster profits may motivate managers to use the degree of discretion provided in the standard the presence of which may shed light on the difference between compliance levels between Russia and Kazakhstan.

Discussion on the impact of firm-specific factors on the levels of compliance in Russian and Kazakhstan firms over 2007-2008-2009

The Table 8 below present the GLM estimates derived together with their levels of significance for a logistic regression model with compliance scores (dependent variable) and firm-specific variables (independent).

Table 8. Generalised ordered logit estimates for firm-specific factors for years 2007, 2008 and 2009

2007	Size: log(TA)		Goodwill (GW)		Profitability (PR)	
	Russia	Kazakh	Russia	Kazakh	Russia	Kazakh
Estimate	-0.178	0.264	0.730	9.860	10.637	-9.346
Std. Error	0.080	0.118	2.005	9.547	3.0218	6.2704
z value	-2.21	2.235	0.364	-1.033	3.52	-1.491
Pr(>|z|)	**0.027 ****	**0.025 ****	0.715	0.301	**0.000 *****	0.1361
2008	Size: log(TA)		Goodwill (GW)		Profitability (PR)	
	Russia	Kazakh	Russia	Kazakh	Russia	Kazakh
Estimate	-0.161	0.050	13.72	37.68	-0.405	0.4416
Std. Error	0.085	0.107	6.192	14.90	0.9828	1.8031
z value	-1.892	0.467	2.216	2.528	-0.413	0.245
Pr(>|z|)	**0.058***	0.640	**0.026 ****	**0.011 ****	0.6797	0.8065
2009	Size: log(TA)		Goodwill (GW)		Profitability (PR)	
	Russia	Kazakh	Russia	Kazakh	Russia	Kazakh
Estimate	-0.161	0.316	5.145	-12.48	-5.878	0.9471
Std. Error	0.081	0.106	2.791	8.0613	2.1376	1.4564
z value	-1.998	2.979	1.843	-1.549	-2.750	0.650
Pr(>|z|)	**0.045 ****	**0.002 *****	**0.065***	0.1214	**0.0059 ****	0.5154

*** significant at 1%;** significant at 5%;*significant at 10%

Overall, the size of the firm appears to be a significant influence on the levels of compliance in both Russian and Kazakhstan firms even though the 2008 estimate for Kazakhstan was not significant. The positive and significant coefficients found in the case of Kazakhstan, fits the a-priori expectations that larger firms' would have the means and motives to comply with the accounting standards. However, in the case of Russian firms, although the coefficients were statistically significant, their signs don't fit with

theoretical expectations. In Russian firms, size appears to be negatively influencing the level of compliance. The result of this regression conclusively suggests that the increased compliance levels found in hypothesis (2) for Russia couldn't have been influenced by firm-size.

It is also apparent from the estimates listed in table (8), that the influence of goodwill intensity in Russian companies is pronounced in two out of the three years while in Kazakhstan, its influence appears

to be pronounced only in one year. Although the results fail to provide conclusive evidence that the compliance levels in Russia were influenced by its goodwill intensity, the statistically significant measure and the appropriate sign of the coefficient lends support to the argument that it is possible that in addition to the gradual approach, goodwill intensity also could have played a role in eliciting superior compliance levels.

On the influence of profitability, although the Russian sample returned statistically significant results in two out of three years, the conflicting signs of the coefficients preclude conclusive determination of its impact. As for Kazakhstan, none of the coefficients were significant leading to the conclusion that profitability has not played a significant influence in the levels of its compliance. Although the results obtained herein are contrary to the expectations that profitable firms would have the incentive to signal 'good news' by utilising the discretion provided in the standard, it is not surprising, as, the perception of profitability between Anglo-Saxon countries and the transitional economies markedly differ. Morris et al. (2006) noted that Russian managers viewed the State as the primary user of accounting information with little appreciation of its relevance in the commercial sense. The authors note that the profit numbers reported in transitional economies are primarily based on tax principles as opposed to the principles of financial health envisaged in accounting standards.

Taken together, the findings of this research permit us to reasonably conclude that the learning process in transition economies is greatly facilitated by a gradual approach. The mandated approach while is capable of eliciting favourable learning environment, is not as efficient as the former.

Conclusion

This paper investigated the effectiveness of gradual versus mandated approaches to bring about changes in transition economies using IAS 36 as an instrument. The study also examined the association of firm-specific factors on compliance levels to shed light on the above investigations.

Evidence from this study suggests that while both mandated and gradual approaches to bring about changes are effective, the latter approach elicits greater results than the former in transition economies when aided by, to a lesser degree, the presence of goodwill intensity. However, despite the increase in compliance levels in both Russia and Kazakhstan, signs of resistance to comply were also observed. Particularly non-compliance patterns were evident in disclosure of growth and discount rates indicating the possibility of lack of enforcement on the part of regulators in these countries. The above results are consistent with findings by previous research in Australia, Hong Kong, Malaysia and Singapore (Bepari et al., 2011; Carlin and Finch, 2010b; Carlin,

Finch, and Khairi, 2010; Carlin et al., 2009; Carlin, Finch, and Tran, 2010).

Examination of the association of the level of compliance by Russian and Kazakhstan firms with firm-specific factors revealed a positive association of the level of compliance by Russian firms with goodwill intensity in each of the years from 2007-2009 and two out of the three years in Kazakhstan firms. The tests results were used to diffuse the argument that heightened compliance scores in Russia could have been influenced by firm-specific factors. None of the GLM estimates for the firm-specific variables, i.e. firm-size, goodwill intensity and profitability led us to believe that these factors could have influenced the compliance levels of either country. While we concur with the notion that goodwill intensity could have played a minor role in the levels of compliance in Russian firms, the evidence does not support this conclusively.

The findings of this study have several implications. First, the paper provides evidence that organisational change and learning required by the adoption of IFRSs in transition economies would be more successful if a gradual approach is taken. Gradual adoption processes provide the necessary duration to assimilate and to debate the applicability of accounting regulations in local environments. The success of Russia in this regard can be attributed to the numerous round-table discussions (The Russian Corporate Governance Roundtable, 2004) that it had initiated akin to those that were initiated by China (Peng and Bewley,2010). Gradual adoptions also provide opportunities for transition economies to inflence the International Accounting Standard Board (IASB) to revise its IFRS requirements to suit local conditions –a kind of push-pull phenomenon (Peng and Bewley, 2010 – refering to Wang, 2007 in Chinese). Second, although the level of compliance with IAS 36 in Russia and Kazakhstan improved over time, evidence is provided indicating the existence of a partial compliance problem which may require greater attention of policy makers in both countries. Echoing the World Bank report, the problem of partial compliance may be overlooked by the countries in the absence of fair value accounting and the current depressed market values in Europe but as markets recover, the idle assets of the Soviet era would have far reaching impact if full compliance is not ensured (World bank, 2007). Third, the non significance of firm-specific factors on compliance needs to be considered by the regulators of both countries. Since none of the firm-specific variables fully conform to a-priori expectations, it is testament of incomplete transition to market economy. Fourth, the present study extended the methodology by refining the measurement of firms' compliance scores. The appropriateness of discount rates was incorporated into the calculation of total compliance scores for firms allowing for a more granular assessment of the level of compliance with IAS 36. Researchers and

analysts may find this approach useful when empirically investigating compliance with IAS 36.

The present study has several limitations. First, since IFRSs were adopted in Kazakhstan in 2006 the research period is relatively short - covering only three years. Evidently, an examination of a longer period would allow for more robust conclusions. Future researchers may be interested in investigating compliance with IAS 36 over an extended period. Second, this study attempted to infer the degree of learning and change that these transition economies have experienced using secondary data. A more in-depth, qualitative data using interviews with accountants in these countries would provide a robust assessment of this process. Third, the sample size of this research was relatively small. It is possible that the number of firms with goodwill in their asset base would increase in Russia and Kazakhstan over time and research with a larger sample would provide an opportunity to increase the statistical power of tests and to achieve more conclusive results.

References:

1. Alam, A., and Banerji, A. (2000). Uzbekistan and Kazakhstan - a tale of two transition paths. World Bank research paper. Retrieved from http://econ.worldbank.org/external/default/main?pagePK=64165259andtheSitePK=469382andpiPK=64165421andmenuPK=64166322andentityID=000094946_00112105321217

2. Albu, N., Albu, C., Bunea, S., Artemisa, D., and Girbina, M. (2011). A story about IAS/IFRS implementation in Romania, An institutional and structuration theory perspective. *Journal of Accounting in Emerging Economies* , Vol.1 No.1, pp. 76-100.

3. Alsaeed, K. (2006). The association between firm-specific characteristics and disclosure: The case of Saudi Arabia. *Managerial Auditing Journal*, Vol. 21 No. 5, pp. 476-496.

4. Bagaeva, A. (2010). The quality of published accounting inforamtion in Russia (PhD disseration). University of Oulu. Retrieved from http://herkules.oulu.fi/isbn9789514261985/isbn9789514261985.pdf

5. Bailey, D. (1995). Accounting in transition in the transitional economy. *The European Accounting Review*, Vol. 4 No. 4, pp. 595-623.

6. Baker T. (2011). Практика применения МСФО в России в 2009 – 2011 годах. Retrieved from http://www.bakertillyrussaudit.ru/research/1399-201105

7. Ball, R. (2006). International Financial Reporting Standards (IFRS): pros and cons for investors. *Accounting and Business Research*, pp. 5-27.

8. Ballas, A., and Tzovas, C. (2010). An empirical investigation of Greek firms' compliance to IFRS disclosure requirements. *International Journal of Managerial and Financial Accouting*, Vol. 2 No. 1, pp. 40-62.

9. Ballas, A., Skoutela, D., and Tzovas, C. (2010). The relevance of IFRS to an emerging market: evidence from Greece. *Managerial Finance* , Vol. 36 No. 11, pp. 931-948.

10. Beatty, A., and Weber, J. (2006). Accounting Discretion in Fair Value Estimates: An Examination of SFAS 142 Goodwill Impairments. *Journal of Accounting Research*, Vol. 44 No. 2, pp. 257-288

11. Bepari, M., Rahman, S., and Mollik, A. (2011). Compliance with IFRS for goodwill impairment test and firm characteristics affecting it [Working Paper]. Retrieved from http://aaahq.org/AM2011/abstract.cfm?submissionID=955

12. Berkowitz, D., DeJong, D. N., and Husted, S. (1998). Quantifying Price Liberalization in Russia. *Journal of Comparative Economics* Vol. 26, pp. 735-760.

13. Bogdan, V., and Cristea, S.-M. (2008). Particularities of accounting regulatory process in several Eastern European and former Soviet Union countries Retrieved from http://steconomice.uoradea.ro/anale/volume/2008/v3-finances-banks-accountancy/179.pdf

14. Bryman, A., and Cramer, D. (2001). Quantitative data analysis with SPSS release 10 for Windows. Hove, East Sussex: Routledge.

15. Camfferman, K., and Cooke, T. (2002). An analysis of disclosure in the annual reports of U.K. and Dutch companies *Journal of International Accounting Research*, Vol. 1, pp. 3-30.

16. Carlin, T., and Finch, N. (2009). Discount Rates in Disarray: Evidence on Flawed Goodwill Impairment Testing. *Australian Accounting Review,* Vol. 1*9 No.* 4, pp.326-336.

17. Carlin, T., and Finch, N. (2010a). Evidence on IFRS goodwill impairment testing by Australian and New Zealand firms. *Managerial Finance*, Vol. 36 No. 9, pp. 785-798.

18. Carlin, T., and Finch, N. (2010b). Resisting compliance with IFRS goodwill accounting and reporting disclosures. Evidence from Australia. *Journal of Accounting and Organizational Change*, Vol. *6 No.* 2, pp. 260-280.

19. Carlin, T., Finch, N., and Khairi, K. (2010). An Empirical Investigation of Compliance and Disclosure Quality Under FRS 36 for Singaporean Listed Firms [Working Paper]. Retrieved from http://ssrn.com

20. Carlin, T., Finch, N., and Laili, N. (2009). Goodwill Accounting in Malaysia and the Transition to IFRS - A Compliance Assessment of Large First Year Adopters. *Journal of Financial Reporting and Accounting*, Vol. 7 No. 1, pp. 75-104.

21. Carlin, T., Finch, N., and Tran, D. (2010). IFRS Compliance in the Year of the Pig: The Practice of Goodwill Impairment Testing Among Large Hong Kong Firms During 2007 [Working Paper]. Retrieved from http://ssrn.com

22. Chamisa, E. (2000). The relevance and observance of the IASC standard in developing countries and in particular case of Zimbabwe. *The International Journal of Accounting*, Vol. *35* No.2, pp. 267-286.

23. Deloitte. (2011). Financial Reporting Framework in Russia Retrieved from http://www.iasplus.com/country/russia.htm

24. DeMelo, M., Denizer, C., and Gelb, A. (1996). From Plan to Market: Patterns of Transition [World Bank - Development Research Group]. Retrieved from http://ssrn.com

25. Dumontier, P., and Raffournier, B. (1998). Why firms comply voluntarily with IAS: an empirical analysis with

Swiss data. *Journal of International Financial Management and Accounting Vol. 9 No.* 3, pp. 216-245.

26. Euroasian Corporate Governance Roundtable. (2001). Transparence and disclosure Kazakhstan. Retrieved from http://www.oecd.org/dataoecd/60/42/2355134.pdf

27. FASB. (2001). Summary of Statement No 142. Retrieved from http://www.fasb.org/summary/stsum142.shtml

28. Gielen, F., Cairns, D., Delikanli, I., Karreman, G., Kim, A., Kuznetsova, G., and Ritchie, I. (2007). Republic of Kazakhstan Accounting and Auditing [Report on the observance of standards and codes]. Retrieved from http://www.worldbank.org/ifa/rosc_aa_kaz_eng.pdf

29. Godfrey, J., and Koh, P. (2009). Goodwill impairment as a reflection of investment opportunities. Accounting and Finance, Vo. 49, No. 1, pp. 117-140.

30. Gray, S. (2001). Issues in cost of capital estimation. Retrieved from http://www.esc.vic.gov.au/NR/rdonlyres/2B99CDD9-3635-4D7F-A8A6-40890B5A4924/0/SubUQBS_GasPosPapOct01.pdf

31. Gregson, R (2008). IFRS perspectives in Russia: another stage of reforms. Interview with Richard Gregson, head of the Accounting Reform project. Retrieved from http://www.adoptifrs.org/uploads/.../IFRS%20perspective%20in%20Russia.pdf

32. Guler, L. (2007). Goodwill impairment charges under SFAS 142: Role of executives' incentives and corporate governance [PhD dissertation]. Advance online publication. Texas AandM University Retrieved from http://proquest.umi.com.ezproxy.aut.ac.nz/pqdlink?vinst=PRODandattempt=1andfmt=6andstartpage=-1andver=1andvname=PQDandRQT=309anddid=1394656061andexp=05-05-2016andscaling=FULLandvtype=PQDandrqt=309andcfc=1andTS=1304762390andclientId=7961

33. Gurkov, I., and Kuz'minov, Y. (1995). Organisational Learning in Russian Privatised Enterprises. *International studies of Management and Organisation*, Vol. 25 No. 4, pp. 91-117.

34. Hart, A. (2001). Mann-Whitney test is not just a test of medians: differences in spread can be important. *British medical journal*, Vol. 323 No. 7309, pp. 391-393.

35. Hassan, M. (2008). Financial accounting regulations and organisational change: a Habermasian perspective. *Journal of Accounting and Organisational Change* , Vol. 4 No. 3, pp. 289-317.

36. Havrylyshyn, O. (2001). Recovery and Growth in Transition Economies: A Decade of Evidence. . IMF staff papers, Vol. 48(Special Issue), pp. 53-87.

37. Hirschey, M., and Richardson, V. (2002). Information content of accounting goodwill numbers. *Journal of Accounting and Public Policy*, Vol. 21 No. 3, pp. 173-191.

38. Ho, R. (2006). *Handbook of Univariate and Multivariate analysis ans intepretation with SPSS*. Boca Raton: ChapmanandHall/CRC.

39. Holthausen, R. (2009). Accounting Standards, Financial Reporting Outcomes and Enforcement. *Journal of Accounting Research* , Vol. 47 No. 2, pp. 447-458.

40. IASB. (2011). International Accounting Standard 36 Impairment of Assets. Retrieved from http://eifrs.iasb.org/eifrs/bnstandards/en/ias36.pdf

41. Ichizli, S., and Zacchea, N. (2000). Accounting reform in the former Soviet Republics: An essential ingredient for economic independence. *The Government Accountants Journal*, Vol. 49 No. 2, pp. 46-53.

42. Inchausti, G. (1997). The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. *European Accounting Review* Vol. 6 No. 1, pp. 45-68.

43. Irnazarov, F. (2009). Transition strategies in Kazakhstan and Uzbekistan since independence : Paradoxes and Prospects. Retrieved from http://www.centralasiaproject.de

44. Jensen, M., and Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.

45. Jermakowicz, E. (2004). Effects of Adoption of International Financial Reporting Standards in Belgium: The Evidence from BEL-20 Companies. *Accounting in Europe,* Vol. 1 No. 1, pp. 51-70.

46. Jermakowics, E., and Gornik-Tomaszewski, S. (2006). Implementing IFRS from the perspective of EU publickly traded companies. *Journal of Accounting, Auditing and Taxation* , Vol. 15, pp. 170-196.

47. Joskow, P. L., Schmalensee, R., Tsukanova, N., and Shleifer, A. (1994). Competition Policy in Russia during and after Privatization. *Brookings Papers on Economic Activity*, pp. 301-381.

48. KASE. (2011). *Эмитенты*. Retrieved 10 June 2011, from http://www.kase.kz/ru/

49. KPMG. (2005). IFRS compared to Russian GAAP. Retrieved June 2013, from http://www.kpmg.com/CN/en/IssuesAndInsights/ArticlesPublications/Documents/IFRS-compared-to-Russian-GAAP-O-200510.pdf

50. Larson, R., and Street, D. (2004). Convergence with IFRS in an expanding Europe: progress and obstacles identified by large accounting firms' survey. *Journal of International Accounting Auditing and Taxation*, Vol. 13 No. 2, pp. 89-119.

51. Li, Z., Shroff, P., Venkataraman, R., and Zhang, I. (2010). Causes and Consequences of Goodwill Impairment Losses [Working Paper]. Retrieved from http://ssrn.com

52. Lonergan, W. (2010). Impairment – a commercial perspective. *Managerial Finance*, Vol. 36 No. 9, pp. 812-826.

53. Lopater, C. (2003). Strategy must drive 'value' in IFRS financial statements. *Financial Executive*, Vol. 19 No. 9, pp. 17.

54. Malone, D., Fries, C., and Jones, T. (1993). An empirical investigation of the extent of corporate financial disclosure in the oil and gas industry. *Journal of Accounting and Auditing and Finance*, Vol. 8 No. 3, pp. 249-279.

55. March, J. (1974). How We Talk and How We Act. In M. C. March (Ed.), *Leadership and Ambiguity.* Boston: Harvard Business School Press.

56. Massoudi, D., Izan, H., and Tarca, A. (2010). Impair or not to Impair? Factors affecting the application of IAS 36 in Australia and the United Kingdom [Working paper]. Retrieved from http://www.business.uts.edu.au/accounting/research/conf11massoudi.pdf

57. McGee, R., and Preobragenskaya, G. (2004). Converting the accounting system of a transition economy: a case study of Russia. *International Journal of Accounting, Auditing and Performance Evaluation,* Vol. *1* No. 4, pp. 448-464.

58. McGee, R., and Preobragenskaya, G. (2005). Accounting and financial system reform in a transition economy. A case study of Russia. New York: Springer.

59. McGreachin, A. (1997). Bringing impairment under one umbrella. *Accountancy*, Vol. 120 No. 1247, pp. 66-69.

60. Mir, M., and Rahaman, A. (2005). The adoption of International Accounting Standards in Bangaladesh. An exploration of rationale and process. *Accounting, Auditing and Accountability Journal* , Vol. 18 No. 6, pp. 816-841.

61. Morris, R., Voronina, T., and Gray, S. (2006). Progress towards adopting Interantional Financial Reporting Standards in Russia: an empirical study of Russian company practices [Working paper]. Retrieved from http://www.afaanz.org/images/stories/pdfs/research/AFAANZ%2006137.pdf

62. Myant, M., and Drahokoupil, J. (2008). International Integration and the Structure of Exports in Central Asian Republics. *Eurasian Geography and Economics,* Vol. 49 No. 5, pp. 604–622.

63. Naser, K., Alkhatib, K., and Karbhari, Y. (2002). Empirical evidence on the depth of corporate information disclosure in developing countries: the case of Jordan. *International Journal of Commerce and Management,* Vol. 12 No. 3/4, pp. 122-134.

64. Nobes, C., and Parker, R. (2004). *Comparative International Accounting* (8 ed.). Harlow, England: Pearson Education.

65. Nobes, C., and Parker, R. (2008). *Comparative International Accounting* (10 ed.). Harlow: Prentice Hall.

66. Owusu-Ansah, S. (2005). Factors influencing corporate compliance with financial reporting requirements in New Zealand. *International Journal of Commerce and Management*, Vol. 15 No. 2, pp. 141-157.

67. Paraszczak, J. (1978). Accounting Soviet Style. *Management Accounting*, 60(1), 51-56.

68. Pawsey, N. L. (2010). Australian preparers perceptions towards the quality and complexity of IFRS. Retrieved from http://apira2010.econ.usyd.edu.au/conference_proceedings/APIRA-2010-199-Pawsey-Australian-preparer-perceptions-of-IFRS.pdf

69. Pomfret, R. (2007). Central Asia since the Dissolution of the Soviet Union: Economic Reforms and Their Impact on State-Society Relations. *Perspectives on Global Development and Technology*, Vol. 6 No. 1-3, pp. 313-343.

70. Peng, S., and Bewley, K. (2010). Adaptability to fair value accounting in an emerging economy - A case study of China's IFRS convergence. *Accountng, Auditing and Accountability Journal* , Vol. 23 No. 8, pp. 982-1011.

71. Peng, S., and van der Laan Smith, J. (2010). Chinese GAAP and IFRS: an analysis of the convergence process. *Journal of International Accounting, Auditing and Taxation*, Vol. 19, pp. 16-34.

72. Peng, S., Tondkar, R., van der Laan Smith, J., and Harless, D. (2008). Does convergence of accounting standards lead to the convergence of accounting practices? A study from China. *The International Journal of Accounting*, Vol. 43, pp. 448-468.

73. Phi Anh, D., and Nguyen, D. (2013). Accounting in a developing transitional economy: the case of Vietnam. *Asian Review of Accounting*, Vol. 21 No. 1, pp. 74-95.

74. Qu, X., and Zhang, G. (2010). Measuring the convergence of national accounting standards with International Financial Reporting Standards: the application of fuzzy clustering analysis. *The international Journal of Accounting*, Vol. 45, pp. 334-355.

75. Ramanna, K. (2008). The implications of unverifiable fair-value accounting: Evidence from the political economy of goodwill accounting. *Journal of Accounting and Economics*, Vol. 45 No. 2/3, pp. 253–281.

76. Rockness, J., Rockness, H., and Ivancevich, S. (2001). The M and A game changes. *Financial Executive*, Vol. 17 No. 7, pp. 22-25.

77. RTS. (2011). *Отчетность Эмитентов*. Retrieved 15 June 2011, from www.rts.ru

78. The Russian Corporate Governance Roundtable. (2004). *Implementing International Financial Reporting Standards (IFRS) in Russia*. Retrieved from http://www.oecd.org/document/22/0,3746,en_2649_201185_35686358_1_1_1_1,00.html

79. Ruzhanskaya, N. (2005). *Методики построения ставки дисконта и возможности их применения в российской практике*. Retrieved 27 June, 2011, from http://koet.syktsu.ru/vestnik/2005/2005-3/23.htm

80. Shedrov, V., and Sevastyanova, E. (1998). *Трансформация учета в Российской Федерации для повышения инвестиционной привлекательности субьектов предпренимательской деятельности*. Moscow: Nauka i economica.

81. Sinadskiy, V. (2003). Расчет ставки дисконтирования. *Финансовый директор, Vol. 4* (April), pp. 12-17.

82. Sosnauskene, O. (2008). *Как перевести Российскую отчетность в международный стандарт*. Moscow: GrossMedia:Rosssiyskiy Buhgalter.

83. Street, D., and Gray, S. (2002). Factors influencing the extent of corporate compliance with International Accounting Standards: summary of a research monograph. *Journal of International Accounting, Auditing and Taxation,* Vol. 11 No. 2, pp. 51-76.

84. Tarr, D., and Volchkova, N. (2010). Russian Trade and Foreign Direct Investment Policy at the Crossroads. Retrieved from http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2010/03/31/000158349_20100331125304/Rendered/PDF/WPS5255.pdf

85. Teplova, T. (2005). Портфельные модели обоснования барьерных ставок доходности на развивающихся рынках: ловушки для аналитиков и практиков. *Финансовый менеджмент* Vol. 2, pp. 40-53.

86. Tyrrall, D., Woodward, D., and Rakhimbekova, A. (2007). The relevance of International Financial Reporting Standards to a developing country: Evidence from Kazakhstan. The International Journal of Accounting, Vol. 42 No' 1, pp. 82-110.

87. United Nations Conference on Trade and Development (UNCTAD) (2008). Practical implementation of international financial reporting standards: Lessons learned. Retrieved from http://www.unctad.org/en/docs/diaeed20081_en.pdf

88. US Energy Information Administration (2010). Retrieved from http://www.eia.gov/countries/country-data.cfm?fips=KZ

89. Vasiliev, D. (2001). Capital market development in Russia. Retrieved from http://siteresources.worldbank.org/ECAEXT/Resources/VassilievPaper.pdf

90. Vaynshteyn, D. (2009). МСФО в России: трудности перехода. Retrieved from http://www.buhgalteria.ru/article/6988

91. Vellam, I. (2004). Implementation of IFRS in Poland: can true convergence be achieved in practice? *Accounting in Europe*, Vol. 1, pp. 143-167.

92. Verriest, A., and Gaeremynck, A. (2009). What Determines Goodwill Impairment? . *Review of Business and Economics*, Vol. 54 No. 2, pp. 1-31.

93. Vichitsarawong, T. (2008). The usefulness of goodwill impairment under SFAS No. 142 in reflecting the relative efficiency of firms. Oklahoma State University. Retrieved from http://digital.library.okstate.edu/etd/umi-okstate-2417.pdf

94. Wallace, R., Naser, K., and Mora, A. (1994). The relationship between the comprehensiveness of corporate annual reports and firm characteristics in Spain. *Accounting and Business Research,* Vol. 25 No. 97, pp. 41-53.

95. Wang, J. (2007). Research in international convergence of Chinese Accounting Standards. Beijing: China Financial and Economics Publishing House.

96. Watts, R. (2003). Conservatism in accounting part I: Explanations and implications. *Accounting Horizons*, Vol. 17 No. 3, pp. 207-221.

97. Wiecek, I., and Young, N. (2010). IFRS primer : international GAAP basics. Hoboken, N.J: John Wiley and Sons.

98. Williams, R, (2006). "Generalised ordered logit/partial proportional odds model for ordinal dependent variables, *The Stata Journal*, Vol. 6, pp. 58-82.

99. Wines, G., Dagwell, R., and Windsor, C. (2007). Implications of the IFRS goodwill accounting treatment. *Managerial Auditing Journal*, Vol. *22 No.* 9, pp. 862-880.

100. WorldBank. (2007). REPORT ON THE OBSERVANCE OF STANDARDS AND CODES (ROSC). Retrieved June 2013, from http://www.worldbank.org/ifa/rosc_aa_kaz_eng.pdf

101. Zeghal, D., and Mhedbi, K. (2006). An analysis of factors affecting the adoption of international Accounting Standards by developing countries. *The international Journal of Accounting* , Vol. 41, pp. 373-386.

102. *Рынок государственных ценных бумаг*. (2011a). Retrieved 15 June, 2011, from http://www.cbr.ru

103. *Рынок государственных ценных бумаг*. (2011b). Retrieved 17 June, 2011, from http://www.nationalbank.kz.

THE SUCCESS OF CHINA'S NON-TRADABLE SHARE REFORM

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Abstract

This paper examines the impact of the Non-tradable Share (NTS) Reform on the financial and operating performance of China's listed firms, using a sample of 563 state-owned enterprises (SOEs) that were partially-privatized through share issue privatizations (SIPs) from 1994 to 1998 and then carried out the NTS reform from 2005 to 2008. We find that the NTS reform has greatly improved firm profitability (measured by real net profit, real EBIT, return on sales and EBIT to sales), output (measured by real sales), operating efficiency (measured by real sales, real net profit and real EBIT per employee) and employment (measured by total employment). The positive effect of the NTS reform on firm operating performance is much stronger than that of the first round SIPs. The regression results show that the decrease of state ownership control is a significant determinant of the increase of firm profitability after the NTS reform.

Keywords: Non-Tradable Share Reform, Operating Performance, China

JEL Codes: G32, G38

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1. Introduction

The success of ongoing economic reform and privatization in China has drawn attention of the policy makers, academics and practitioners. China carried out its first round privatization in 1990 and 1991 as signaled by the establishment of the Shanghai and Shenzhen Stock Exchanges and the partial share issue privatizations (SIPs). Although most non-Chinese studies (such as Megginson, Nash and Randenborgh, 1994; Boubakri and Cosset, 1998) show that privatization greatly improves the financial and operating performance of former SOEs, studies indicate that China's first round privatization is far from being successful (Lin, Cai and Zhou, 1998) and SIP firms' profitability decreases after the first round privatization (Sun and Tong, 2003; Jiang, Yue and Zhao, 2009). Problems existing with first round SIPs include inefficiency and under-development of the Chinese stock markets, still strong state control after SIPs and the inefficient corporate governance of SIP firms (Jiang, et al., 2009).

In April 2005, China carried out the split-share structure reform, also known as the non-tradable share (NTS) reform, aiming to make all non-tradable shares[3] tradable gradually. By doing so, the tradable share proportions and market liquidity will increase and the privatization can be further carried out (Liao, Liu and Wang, 2014). The limited success for SIP firm performance is mainly due to the fact that SIPs have been revenue privatization[4] in newly established stock markets. However, we believe that the NTS reform could potentially improve firm performance for the following three reasons. First, the increase of

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[3] The existence of NTS is due to the partial privatization of the first round SIPs. NTS cannot be traded in the stock markets and typically belong to the state or to domestic companies ultimately owned by the central or local governments, while tradable shares are owned by domestic and foreign individual investors as well as institutional investors. As of February 2005, NTS accounted for approximately two thirds of shares in the Chinese stock markets, which caused major problems in China's stock markets (discussed further in Section 2.2).
[4] Revenue privatization refers to that the government retains shareholdings of more than 50% after the privatization.

tradable share proportions after the NTS reform could contribute to the development of an outside market in corporate control (Jiang, Laurenceson and Tang, 2008). With the possible increase of liquidity, market monitoring and corporate governance, firm operating performance should improve. Second, according to Sun and Tong (2003), the reason for the limited success of China's first round privatization is that state ownership still dominates within listed companies and this has a negative impact on firm performance, as the primary mission of state-owned enterprises (SOEs) is to serve the government's fiscal and social economic objectives (Shleifer, 1998; Shleifer and Vishny, 1997). Shleifer (1998) also documents that state ownership can result in a lack of incentive to minimize costs or to innovate. Figure 1 shows that state ownership control of our sample firms fell from 35% to 10% from 1999 to 2010 (pre to post the NTS reform). With decreased state control, firms would have more chance to pursue market-orientated objectives, which in turn could improve productivity and operating efficiency. Third, D'Souza, Megginson and Nash (2005) indicate that capital market characteristics are highly related to a firm's post privatization performance. Gupta (2005) investigates the effect of partial privatization on firm performance in India. The results show that both the level and the growth rate of profitability and labour productivity improve significantly following partial privatization. He argues that though management control is not transferred to private owners in partial privatization, the stock market can play a positive role in monitoring and rewarding managerial performance. In comparison with the first round SIPs, the Chinese stock markets have made significant improvement on

commercialization, market capitalization, market regulations and market mechanisms at the time of the NTS reform. The improved market conditions could increase the post-privatization performance.

In this paper, we investigate to what extent the NTS reform has been successful by examining firm operating performance changes. Using a total sample of 563 SOEs that went public through SIPs from 1994 to 1998 and then carried out the NTS reform from 2005 to 2008, we study the financial and operating performance of sample firms between pre and post the NTS reform. We also compare the NTS reform results with the results of the first round SIPs. Although evidence shows significant increases in absolute earnings and output after both reforms, we find that the profitability (measured by return on sales (ROS) and EBIT to sales (EBITS)) significantly decreases after the first round privatization, but significantly increases after the NTS reform. Moreover, operating efficiency and employment increase significantly after the NTS reform.

To further confirm and investigate our results, we employ regression analyses, with ROS and EBITS as the dependent variables. We create a reform year dummy and use panel data regressions to analyze whether the NTS reform is a significant determinant for profitability improvements. The results confirm our expectation. In addition, we examine the impact of the change of state ownership concentration (three years before to three years after the NTS reform) on firm performance change. We find evidence that a decrease of state ownership control after the NTS reform has a significantly positive impact on firm profitability.

Figure 1. Ownership concentration change of sample firms from 1999 to 2010

This Figure reports the ownership concentration change for our sample firms from 1999 to 2010. Ownership Concentration refers to the percentage of shares held by the largest shareholder. State Control refers to the percentage of shares held by the State if the State is the largest shareholder. Legal Person Control refers to the percentage of shares held by the legal persons if a legal person is the largest shareholder.
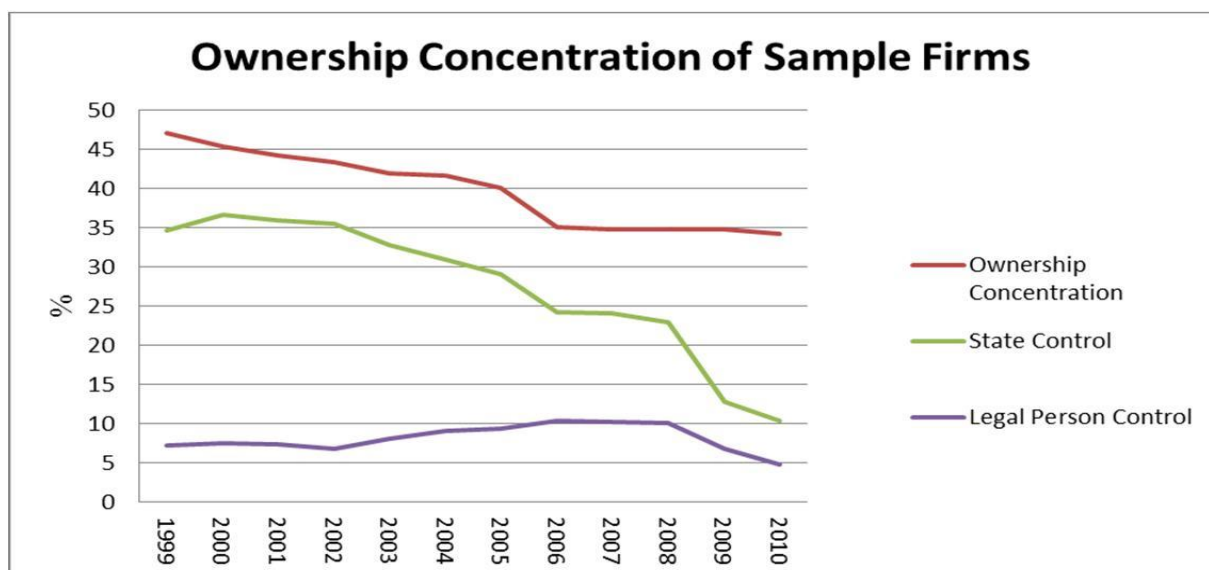
Our study contributes to the literature in the following ways. First, due to the short history of the NTS reform, there are few studies examining the operating performance change after the NTS reform. As a major Chinese government economic reform, it is important for policy makers and the investors to know the extent of its success. Second, given one of the purposes of the NTS reform is to boost privatization in China, we find empirical evidence that reducing state control can significantly increase firm profitability, which provides support for policy makers to carry out the privatization scheme further.

The remainder of this paper is organized as follows. Section 2 provides the literature review, privatization background and hypothesis development. Section 3 describes the data and the methodology. Section 4 shows the empirical results on performance changes before and after the two reforms and the relationship between the change of state control and performance change around the NTS reform. Section 5 concludes.

2. Literature review, privatization background and hypothesis development

2.1 Post-privatization performance in non-Chinese markets

The goals of privatization are to promote increased efficiency, introduce competition, expose SOEs to market discipline, encourage foreign investment, foster wider share ownership and raise revenue for the state (Megginson and Netter, 2001). A World Bank study shows that "since 1980, more than 2000 SOEs have been privatized in developing countries, 6,800 worldwide" (Kikeri, Nellis and Shirley, 1992, p2). A considerable number of studies have examined the post-privatization performance, and find that after being privatized former SOEs become more profitable and efficient in most developed and developing countries.

By using information of 61 companies from 18 countries and 32 different industries during the period 1961 to 1990, Megginson, Nash and Randenborgh (1994) find that there are significant increases in profitability (measured by return on sales, return on assets and return on equity), output per employee (measured by real sales), capital spending (measured by ratios of capital expenditures to sales and capital expenditures to assets) and total employment. These indicate strong performance improvements without sacrificing employment security. Moreover, these firms are able to lower their debt levels and increase dividend payouts. Furthermore, using a sample of 129 SIPs from 23 developed (OECD) countries, D'Souza et al. (2005) document significant increases in profitability, efficiency, output and capital expenditure following privatization and indicate that ownership (both private and foreign), degree of economic freedom and level of capital market

development significantly affect post-privatization performance.

In addition, by examining the performance changes of 79 companies from 21 developing countries from 1980 to 1992, Boubakri and Cosset (1998) document that newly privatized firms exhibit significant increases in profitability, operating efficiency, capital investment spending, real sales, employment level and dividends. Moreover, using a sample of 230 firms in 32 developing countries, Boubakri, Cosset and Guedhami (2005) document a significant increase in profitability, efficiency, investment and output. Their analysis also shows that the changes in performance vary with the extent of macro-economic reforms and environment and the effectiveness of corporate governance. Furthermore, control relinquishment by the government is a key determinant of post-privatization performance improvement.

2.2 First round privatization in China and the post-privatization performance

Up to late 1970s, the Chinese economy was a strictly planned economy, controlled by the government, including capital allocation process, production plans and labor markets. However, SOEs were highly unproductive and inefficient. As a result, China embarked on its economic reform gradually and begun its modernization program.

The first round privatization began with the establishment of the Shanghai and Shenzhen Stock Exchanges in 1990 and 1991 and the first wave of partial SIPs, which initially divested government ownership of some Chinese SOEs. However, China's first round privatization is a partial share issue privatization in newly established stock markets. Studies on Chinese first round of privatization reveal mixed results on performance changes of privatized firms. Sun and Tong (2003) examine 634 SIP firms and show that there are improvements in absolute earnings, real sales and employee productivity after SIPs, while both return on sales and earnings on sales decrease significantly, which is known as the "profitability puzzle" in China.

Huang and Song (2005) find significant declines in profitability, efficiency and leverage ratio after H-firms[5] going public, while the output of these H-firms experiences a gradual and steady increase following privatization. Moreover, based on a sample of 149 SIP firms during the period 1998 to 2003, Jiang, Yue and Zhao (2009) confirm that the absolute level of SIP firm profitability decreases after privatization. Overall, these results are much less favorable than the evidence found in other countries, and suggest that there is very limited success in the first round of privatization, especially on profitability. Some researchers even claim that China first round

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[5] H-firms are the firms that are incorporated in mainland China and listed in the Hong Kong Stock Exchange.

privatization is "nothing but a logo" or just "old wine in new bottles" (Xu and Wang, 1997).

Jiang, Yue and Zhao (2009) analyze three problems associated with the early SIP firms in China. First, the actual control of partially privatized firms is still in the state's hand, as the main purpose of the SIPs was just to raise capital for the SOEs, rather than the state giving up control of these firms. Second, the Chinese stock markets have a lack of effective and efficient market institutions and mechanisms to protect minority investors. Third, the management of SIP firms has not improved much and is still accountable to the government controlling shareholders.

Another side-effect of the first round privatization in China is the split-share structure, where there are tradable shares and non-tradable shares existing at the same time in listed firms. The split-share structure is perceived to be harmful for listed firms and the Chinese stock markets. First, Wu (2006) indicates that this structure leads to a conflict of interest between tradable shareholders and non-tradable shareholders. Non-tradable shareholders capture benefits mainly from tradable shareholders, rather than from the improvement of profitability and enhancement of the company's competitiveness. Using excess debt, non-tradable shareholders can expropriate the interests of tradable shareholders to realize the rapid increase of their assets value (Liu and Tian, 2012). Second, the split-share structure has a negative impact on the pricing function of the capital markets. The lack of market-oriented mergers and acquisitions cause the Chinese capital market to become a pure speculation market (Luo, 2007). Although merger and acquisition activities are numerous, mergers and restructuring have become an important means for tunneling (expropriating firm assets) by major shareholders of listed companies. Third, as tradable shares only count for approximately one third of the total shares outstanding and are owned by many individual shareholders, tradable shareholders have no incentive or capability to monitor firm management, leading to poor corporate governance in Chinese listed firms (Li, Wang, Cheung and Liang, 2011).

2.3 Non-tradable share reform and hypothesis development

Over the years, the Chinese government has recognized that the predominance of non-tradable shares has badly affected the market's proper development and expansion[6]. Therefore, in April 2005, China formally started the split-share structuring reform (or called the NTS reform). The key objective of the NTS reform is to convert the non-tradable shares into tradable shares gradually and to create liquidity in the stock markets (Beltratti, Bortolotti and Caccavaio, 2010). At the same time,

the NTS reform offers further opportunity for privatization in the Chinese stock markets with increased liquidity of state-owned shares (Liao et al., 2014).

The reform enforces the holders of non-tradable shares to compensate holders of tradable shares in exchange for the possibility to publicly trade their shares in the future. The issuing price of non-tradable shares is usually much lower than that of tradable shares of the same firm. To make non-tradable shares tradable and have the same value as the tradable shares in the stock markets, non-tradable shareholders have to provide some compensation to tradable shareholders. Li et al. (2011) document that the compensation can be in the forms of cash payment, paying stock dividends to tradable shareholders, transferring shares from non-tradable shareholders to tradable shareholders, issuing new share capital only to tradable shareholders and issuing warrants to shareholders, and cash payment and paying stock dividends to tradable shareholders are the most popular approaches. According to the regulations of the China Securities Regulatory Commission (CSRC), there is a twelve-month lockup period to limit previous non-tradable shares be traded or transferred in order to stabilize the stock market. After expiration of the lock-up, non-tradable shareholders are further prohibited from trading more than 5% (or 10%) of the company's total shares within 12 (or 24) months. By the end of 2006, more than 80% of the listed firms in China had successfully participated in the NTS reform program. (Yeh, Shu, Lee and Su, 2009)

We believe that the NTS reform would have a positive impact on firm operating performance for the following reasons.

First, Beltratti, Bortolotti and Caccavaio (2010) state that although the NTS reform has little immediate direct impact on the structure of the Chinese stock markets as the actual change of shares from non-tradable to tradable takes time, the reform will affect positively the fundamentals of the Chinese stock markets (e.g., increase in the available float with positive implications for liquidity and enhancement of the market for corporate control). Jiang, Laurenceson and Tang (2008) also point out that increasing the tradable share proportion might better facilitate the development of an outside market in corporate control. The increased corporate governance after NTS reform should be beneficial to firm operating performance.

Second, Liao et al. (2014) state that the NTS reform would provide opportunities and lead to further privatization in China. As Jiang, Yue and Zhao (2009) document that one of the reasons for the limited success of the first round SIPs is that the state still remains the control of most SIP firms. Although there is no definite answer on the effect of the state-owned shares on firm performance[7], a number of

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[6] People's Daily, June 28, 2005.

[7] The impact of state ownership on firm performance is controversial. Some studies argue that state ownership is the

studies claim that the key determinant of post-privatization performance improvement is the control relinquishment by the government (Boubakri, et al., 2005; D'souza, Megginson and Nash, 2001). D'souza et al. (2001) suggest that relinquished control provides privatized firms greater entrepreneurial opportunities. They explore the determinants of performance improvements following privatization by utilizing a sample of 118 firms privatized via public share offerings between 1961 and 1995, and find that ownership is the most significant determinant of change in post-privatization performance. In addition, using a sample of 127 Chinese listed companies that have had ownership control transferred from the government to private owners, Huang and Wang (2011) explore the effect of ultimate privatization on the performance of Chinese listed firms and find that the transfer of control to private owners enhances operating efficiency and profitability significantly. Therefore, the possible decrease of state control after the NTS reform should lead to improved operating performance.

Third, in comparison with the first round SIPs, Chinese stock markets had developed significantly by the time when the NTS reform took place. D'Souza et al. (2005) indicate that the characteristics of specific capital markets are highly related to the firm performance following privatization. Megginson (2005) also suggests that a very important step in a successful SOE privatization is "commercialization, which means converting the mission of the enterprise from maximizing social welfare to maximizing economic profits, as well as developing new private-sector operating procedures and policies" (p.73). Moreover, The World Bank (1995) suggests that in developing countries, institutional reform must be accomplished before privatization to capture the benefits of divestiture. According to Long, Tsui and Zhang (2014), by the end of 2009, the Chinese stock market has emerged to be the world's second-largest stock market by market capitalization. Moreover, the Chinese government has launched intensive and extensive reforms in the last decade which have improved substantially the regulatory system, the market-oriented appraisal system for initial public offerings (IPOs) as well as the corporate governance of listed firms in some extent. A further privatization in the more developed Chinese stock markets should lead to better operating performance. Thus, we hypothesize the following:

H1: The NTS reform has a positive effect on firm operating performance.
H2: The decrease of the state control has a positive effect on firm operating performance following the NTS reform.

3. Data and methodology

3.1 Data

Our sample includes 563 listed SOEs[8] that undertook the share issue privatizations (first round of privatizations) during the year 1994 to 1998, and then carried out the NTS reform from 2005 to 2008. As we study firm performance from three years pre to three years post the reform, our sample is chosen to avoid overlapping in investigating firm accounting performance. Overall, the financial data ranges from the year 1991 to 2010[9]. We collect the data from the China Stock Market and Accounting Research Database (CSMAR), National Bureau of Statistics of China (NBSC) and WIND Financial Database. We select firms privatized from 1994 as China changed accounting standards to be closer to international norms, taking effect from January 1994. The pre-listing data were recompiled by the auditing firms using new standards, so the accounting standard is identical between pre and post-listing (Sun and Tong, 2003).

Table 1 shows the distribution of our sample. Panel A documents the distribution based on the time of the first round SIPs and the time of the NTS reform. There are 33% of sample firms which began the first round of privatization in 1997, followed by 29.1% in 1996. While in 1995, only 4.3% of companies conducted share issue privatizations. The NTS reform started in 2005. Approximately a quarter of sample firms carried out reforms in 2005 (25.8%), while the majority reformed in 2006 (71.6%). There are only six and nine sample firms carrying out reforms in 2007 and 2008, respectively. According to the CSMAR database, our sample firms can be classified into six industries as shown in Panel B: commerce, conglomerates, finance, industrial, properties and public utility. Over half of our sample consists of industrial firms (55.4%), followed by the conglomerates (13.7%) and commerce (12.4%). In addition, Table 1 panel C shows that 52.8% of the sample is from the East region. Firms located in the West and Central regions are made up of 22.7% and 15.6% of the sample, respectively. Only 8.9% of the sample comes from the Northeast district.

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origin of immense agency problems in SOEs (Sun and Tong, 2003), and it may undermine the performance of firms (Shleifer and Vishny, 1986, 1997; Jiang, Yue and Zhao, 2009), while other researchers assert that state ownership has a positive effect on firm performance particularly in developing and transition economies (Claessens and Djankov, 1998; Omran, 2002).

[8] To ensure these are state-owned companies, we check the ownership structure of these firms after SIPs and we only include firms with state ownership after SIPs as our sample firms.
[9] Due to data limitation, the accounting statements end in 2010. Therefore, for the nine companies, which had their NTS reforms in 2008, they only have two years of annual accounting data after the reform.

Table 1. Distribution of sample firms based on time of the reform, industry and location

This table documents the distribution of the sample. Our sample includes 563 SOEs that conducted SIPs during the period from 1994 to 1998, and took part in the NTS reform from 2005 to 2008. Panel A reports the number of firms took part in the first round of privatization (share issue privatization) and the NTS reform by year. Panel B reports the information about the classification of industry while panel C shows the four regional distributions of sample firms.Panel A: SIP and NTS reform samples.

Reform Year	SIP Sample	% Total	Reform Year	NTS Reform Sample	% Total
1994	96	17.1	2005	145	25.8
1995	24	4.3	2006	403	71.6
1996	164	29.1	2007	6	1
1997	186	33	2008	9	1.6
1998	93	16.5			
Total number of firms	563	100	Total number of firms	563	100

	Panel B: Industry Number of Sample			Panel C: Location Number of Sample	
Industry	Firms	% Total	Region	Firms	%Total
Commerce	70	12.4	East	297	52.8
Conglomerates	77	13.7	Central	88	15.6
Finance	8	1.4	West	128	22.7
Industrials	312	55.4	Northeast	50	8.9
Properties	51	9.1	Total	563	100
Public Utility	45	8			
Total	563	100			

3.2 Methodology in measuring and comparing firm operating performance

We employ the MNR 1994 (Megginson, Nash and Randenborgh, 1994) methodology and follow the study of Sun and Tong (2003) to measure firm performance changes before and after both the SIPs and the NTS reform. We examine six areas of the firm performance, namely: absolute earnings, profitability, operating efficiency, output, employment and leverage. Appendix A presents the definitions of the performance measures.

To ensure that it is reasonable and valid to compare the performance changes between the first round privatization and the NTS reform, we utilize the variables in Sun and Tong (2003) to consider the special features of SOE privatization in China. We employ real net profit[10] (RNP) and return on sales (ROS) as the main profitability measures, as they avoid the problem of mechanical increase in equity through primary issues (Sun and Tong, 2003). Moreover, real EBIT (REBIT) and EBIT to sales (EBITS) are used as the additional measures for profitability. Given data availability, we test the operating efficiency (measured by real sales or real

net profit or real EBIT to number of employees) and number of employment just around the NTS reform.

Following Megginson, Nash and Randenborgh (1994), we compute performance proxies for every firm for a seven-year period: from three years before to three years after both the first round of privatization and the NTS reform. Then we calculate the mean (median) of each variable for each firm over the pre- and post-privatization windows. For all firms, the year of privatization was excluded from the mean (median) calculations. Having computed pre- and post-privatization means (median), we use the t-test and the Wilcoxon z-test to examine whether the difference on performance measures between pre and post-privatizations issignificant. We also carry out a proportion z-test to see if the proportion of positive or negative change is greater than 50%.

3.3 Regression analyses

To further test our two hypotheses, we use regression analyses. First, we investigate how the NTS reform affects firm profitability, by creating a reform year dummy. The reform year dummy equals one for the reform year and the post-reform years, otherwise it equals zero. As in Liu and Tian (2012), the NTS reform has an exogenous impact on firm performance because the Chinese government implements the reform for all listed firms. The panel data regression model is expressed as follows.

$$\text{Profitability}_{it} = \alpha_{it} + \beta 1 \text{YRDUM}_{it} + \beta 2 \text{SIZE}_{it} + \beta 3 \text{LEVE}_{it} + \beta 4 \text{BOARD}_{it} + \beta 5 \text{INDEP/BOARD}_{it} + \beta 6 \text{GDP}_{it} + \varepsilon_{it} \quad (1)$$

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[10] Real net profit is calculated by adjusting a firm's annual net profit with the annual inflation rate taken from National Bureau of Statistics of China (NBSC). The figures are then normalized to one in the year of privatization. We use the same method to compute real EBIT, real sales and all the operating efficiency ratios.

ROS and EBITS are used as the dependent variables to measure firm profitability. We employ the following control variables: SIZE (natural logarithm of total assets), LEVE (total debt divided by total assets), BOARD (the natural logarithm of the total number of directors on the board), INDEP/BOARD (the percentage of independent directors on the board) and GDP (annual growth of real GDP). Appendix B lists the definitions of variables and their expected signs in the regression. We also report the descriptive statistics of all variables in Table 2.

Table 2. Summary descriptive of all variables

Table 2 presents summary descriptive of dependent variables and independent variables. Dependent variables include ROS and EBITS. Independent variables include ownership concentration measures LASH, STLA, LPLA, STLAD and LPLAD; and SIZE, LEVE, BOARD, INDEP/BOARD, as well as GDP. Panel A reports summary descriptive of the variables in panel data regressions. It consists of 563 sample firms for the time period from 1999 to 2010. Panel B presents summary descriptive of the variables in cross-section regressions. This sample consists of 544 out of 563 total sample firms due to some missing data. "Δ" in panel B is the difference of the three-year before the NTS reform and the three-year after the reform measures.

Panel A: Summary descriptive of all variables in panel data regressions

Variable	Obs.	Mean	Std. Dev.	Min	Max
ROS	6548	0.0335	0.3180	-3.3891	1.3510
EBITS	6548	0.0382	0.3445	-5.3055	3.3162
SIZE	6548	21.3049	1.1093	16.6943	26.1563
LEVE	6548	0.5248	0.3377	0.0081	7.1440
BOARD	6548	2.2144	0.2333	1.3863	2.9444
INDEP/BOARD	6548	0.2606	0.1531	0.0000	0.6667
GDP	6548	10.0583	1.8102	7.6000	14.2000
LASH	6548	39.8402	16.6433	3.5000	84.9800
STLAD	6548	0.6257	0.4840	0	1
LPLAD	6548	0.2445	0.4298	0	1

Panel B summary descriptive of all variables in cross-section regressions

Variable	Obs.	Mean	Std. Dev.	Min	Max
ΔROS	544	0.0302	0.2852	-2.6861	1.6601
ΔEBITS	544	0.0089	0.3165	-2.6198	2.2579
ΔSIZE	544	0.1714	0.2852	-0.9134	1.5711
ΔLEVE	544	0.0377	0.4232	-4.5811	4.5453
ΔBOARD	544	-0.0592	0.1769	-0.9808	0.5108
ΔINDEP/BOARD	544	0.0298	0.0576	-0.1746	0.4192
ΔSTLA	544	-10.9849	16.4274	-69.7700	61.4200
ΔLPLA	544	0.8750	14.5308	-68.7933	64.2333

To test the second hypothesis, we first examine the impact of the state control on firm profitability using panel data regression with industry-, location- and year-fixed effect and firm fixed effect. Chen, Firth and Xu (2009) argue that distinct types of owners have different objectives and motivations and this will affect how they exercise their control rights over the firms they invest in. We use a firm's largest shareholding and a state dummy to test the impact of state control on firm profitability. We also use a firm's largest shareholding and a legal person dummy to provide a robustness check, as the state and the legal person ownerships are the two major ownerships in Chinese listed companies[11]. We also conduct the Granger causality regressions using panel date to address possible endogenous concern[12].

Then we use cross sectional regression to test the impact of the state control change on firm profitability change around the NTS reform. This approach allows us to rule out the possible change in the general level of economic activity before and after the reform, which may be a reason for changes in firm attributes (Dewenter and Malatesta, 2001). For a robustness check, we also add the change of legal person control as another independent variable in the cross sectional regression to control for this effect. The panel and cross sectional regressions are shown below.

Profitabilityit = αit + β1LASHit + β2STLADit / LPLADit + β3SIZEit + β4LEVEit +β5BOARDit + β6INDEP/BOARDit + εit (2)

Profitability$i$ = αi + β1 STLAi (and LPLAi) + β2 SIZEi + β3 LEVEi +β4 BOARDi + β5 INDEP/BOARDi + εi (3)

LASH is the percentage of shares held by the largest shareholder. STLAD and LPLAD are dummy variables, which equal one if the largest shareholder is a state agent (or a state-owned company) or a legal person, otherwise equal zero. STLA and LPLA represent the percentage of the shares held by the largest shareholder, which is a state agent (or a state-owned company) and a legal person, respectively. The sign " " is to use the three-year average after the NTS

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[11] In China, generally there are six types of shares in a listed firm, namely the state, legal person, foreign, management, employee and individual shares.

[12] The results are consistent. Due to size limitation, the results are not reported and available on request.

reform measures minus the three-year average before the NTS reform measures.

4. Results

4.1 Results on the performance changes following the two reforms

4.1.1 Profitability changes

Following Sun and Tong (2003), we measure profitability change using both absolute earnings and profitability ratios. First, we investigate the changes in real net profit (RNP) and real EBIT (REBIT) from prior to post privatization. Panel A in Table 3 illustrates the results of first round of privatization while Panel B shows the performance changes around the NTS reform. As shown, the means (medians) RNP and REBIT increase significantly after both reforms. The t-tests, Wilcoxon z-tests and proportion z-tests all show that absolute earning improvement is significant at the 1% level. The significant improvement in real net profit after the first round privatization is consistent with the results in Sun and Tong (2003).

Table 3. Performance changes following the two reforms

This table presents the operating performance we examine for changes arising from the two reforms. Definitions of the operating performance measures are shown in Appendix A. Panel A reports the results from the first round privatization. We employ the t-test to test the significance of changes in the mean values, and use the Wilcoxon z-test to test the significance of changes in median values. We compute performance proxies for every firm for a seven- year period: three years before to three years after the privatizations. Then we calculate the mean and median of each variable for each firm over the pre- and post-privatization windows. For all firms, the year of privatization was excluded from the mean and median calculations. We also carry out a proportion z-test to examine if the proportion of positive or negative change is greater than 50%. *** indicates significance at the 1% level. ** indicates significance at the 5% level. * indicates significance at the 10% level.

Panel A: Performance changes following the first round privatization

Character	Variables	N	Before		After		Mean Change (After-Before) t-test	Median Change (After-Before) Wilcoxon test	+ve/-ve Ratio (Prop. Z)
			Mean	Medium	Mean	Median			
Absolute Earnings	RNP	526	0.6429	0.5425	1.1589	1.1300	0.5160 (7.8133)***	0.5875 (12.228)***	412/113 (12.9934)***
	REBIT	455	0.6330	0.5667	1.1214	1.1026	0.4884 (8.3441)***	0.5359 (11.102)***	343/112 (10.8294)***
Profitability	ROS	524	0.1618	0.1231	0.1026	0.1190	-0.0593 (-4.3784)***	-0.0041 (-3.068)***	241/283 (-1.8348)*
	EBITS	451	0.1796	0.1428	0.1000	0.1332	-0.0796 (-3.8362)***	-0.0096 (-4.673)***	185/266 (-3.8141)***
Output	SAL	535	0.7121	0.7033	1.5626	1.3333	0.8505 (20.3172)***	0.6300 (18.260)***	473/59 (17.7691)***
Leverage	LEV	271	0.5720	0.6004	0.3900	0.3783	-0.1820 (-18.2297)***	-0.2221 (-12.507)***	31/240 (-12.6958)***

Interestingly, when we measure the profitability using ratios, we observe different results on the two reforms. Panel A in Table 3 shows that the means (medians) ROS and EBITS decrease significantly at the 1% level after the first round of privatization, which is consistent with the findings of Sun and Tong (2003), suggesting that there is deterioration after the first round privatization when profitability is measured in ratio forms. In contrast, Panel B in Table 3 presents the means (medians) ROS and EBITS increase significantly from the 10% to 1% levels, indicating significant profitability improvements after the NTS reform. The opposite results on ROS and EBITS changes around the two reforms imply that the NTSreform is more successful regarding the profitability improvement. We will further investigate this result using regression analyses in the following sections.

Table 3. Performance changes following the two reforms, continued

This table presents the operating performance we examine for changes arising from the two reforms. Definitions of the operating performance measures are shown in Appendix A. Panel B reports the results from the NTS reform. We employ the t-test to test the significance of changes in the mean values, and use the Wilcoxon z-test to test the significance of changes in median values. We compute performance proxies for every firm for a seven-year period: three years before to three years after the NTS reform. Then we calculate the mean and median of each variable for each firm over the pre- and post-reform windows. For all firms, the year of the reform was excluded from the mean and median calculations. We also carry out a proportion z-test to examine if the proportion of positive or negative change is greater than 50%. *** indicates significance at the 1% level. ** indicates significance at the 5% level. * indicates significance at the 10% level.

Panel B: Performance changes following the NTS reform

Character	Variables	N	Before		After		Mean Change t-test	Median Change Wilcoxon test	+ve/-ve Ratio (Prop. Z)
			Mean	Median	Mean	Median			
Absolute Earnings	RNP	548	0.2770	0.6164	0.9031	0.8587	0.6261	0.2423	324/224
							(2.7500)***	(4.725)***	(4.2718)***
	REBIT	555	0.3727	0.5699	1.2191	1.0240	0.8464	0.4541	375/180
							(2.4934)**	(7.475)***	(8.2773)***
Profitability	ROS	556	-0.2047	0.0304	0.0665	0.0415	0.2712	0.0111	305/251
							(2.2467)**	(2.813)***	(2.2901)**
	ROA	553	0.0077	0.0223	0.0155	0.0298	0.0078	0.0075	294/254
							(0.9548)	(1.713)*	(1.4884)
	EBITS	554	-0.0808	0.0300	0.0305	0.0483	0.1113	0.0183	317/237
							(1.6820)*	(4.355)***	(3.3989)***
Operating Efficiency	SALEFF	557	1868.41	499.00	1818.19	580.00	-50.00	81.00	348/208
							(-0.1679)	(4.419)***	(5.8896)***
	NPEFF	553	65.53	16.86	85.78	23.43	20.25	6.57	315/238
							(1.0545)	(2.370)**	(3.2744)***
	EBITEFF	554	92.43	15.01	159.67	30.91	67.24	15.90	344/210
							(3.6268)***	(5.837)***	(5.6931)***
Output	SAL	555	1.2359	0.8571	1.6302	1.1481	0.3943	0.2910	353/200
							(3.0048)***	(7.107)***	(6.4096)***
Employment	EMPL	560	3146.88	1782.83	4045.13	1989.67	898.24	236.84	299/261
							(5.4038)***	(4.148)***	(1.6058)**
Leverage	LEV	554	0.5528	0.5212	0.6032	0.5538	0.0504	0.0326	333/221
							(2.0103)**	(5.171)***	(4.7584)***
	OCF/TD	554	0.1411	0.1039	0.1284	0.0980	-0.0270	-0.0059	272/282
							(-0.9504)	(-0.890)	(-0.4249)

4.1.2 Output changes

Megginson, Nash and Randenborgh (1994) document that real sales increase following privatization due to better incentives, more flexible financing opportunities, increased competition and greater scope for entrepreneurial initiative resulted from privatization. However, Boycko, Shleifer and Vishny (1994) argue that effective privatization will lead to a reduction in output, since the government can no longer entice managers (through subsidies) to maintain inefficient high output levels. Table 3 shows that real sales increase significantly at the 1% level after the two reforms in China, and our findings are

consistent with the results of Sun and Tong (2003) when studying China's first round privatization.

4.1.3 Employment changes

A concern of all governments is that efficiency and profitability improvement after privatization might be attained at the cost of extensive layoffs (Megginson, Nash and Randenborgh, 1994; Boubakri and Cosset, 1998). Therefore, employment is typically an important issue in privatizing SOEs (Sun and Tong, 2003). Due to the lack of employee data, we are not able to compute the employment changes on the first round privatization. According to Sun and Tong (2003), the median employment in the first round of

privatization increases from 1,478 workers before privatization to 1,849 workers after SIPs. Also, there are 63 out of 112 firms exhibiting employment increase and only 49 firms exhibit employment decrease. However, these changes are not statistically significant.

Panel B in Table 3 shows that our sample firms experience an increase in the mean (median) of employment from 3,147 (1,783) before the NTS reform to 4,045 (1,990) after the reform.

Both the t-test and Wilcoxon z-test are significance at the 1% level. Meanwhile, the proportion z-test shows that 53.39% of firms experience an increase in employee numbers, which is significant at the 5% level. These results suggest that the NTS reform increases employee numbers significantly.

4.1.4 Operating efficiency changes

Megginson, Nash and Randenborgh (1994) point out that, by throwing an SOE into market competition, governments clearly hope that these firms will utilize their human, financial and technological resources more efficiently. In removing the noneconomic objectives from their SOEs, governments explicitly state that the trade-off they expect is increased operating and financial efficiency.

We employ three measures, namely real sales per employee (SALEFF), real net profit per employee (NPEFF) and real EBIT per employee (EBITEFF), to calculate the operating efficiency. Due to the lack of data on the number of employee, we are not able to test these efficiency measures for the first round of privatization. Panel B in Table 3 shows that the medians of all three measures increase significantly at the 5% or 1% level after the NTS reform, although only the mean of EBITEFF experiences a significant increase at the 1% level. Overall, there is an improvement in operating efficiency after the NTS reform. Together with the results on increased employment number after the NTS reform, we can see that the improved operating efficiency after the NTS reform is not due to the layoffs.

4.1.5 Leverage changes

It is expected that leverage of former SOEs would drop after privatization in that a government's removal of debt guarantees will increase the cost of borrowing and in that the former SOEs will have increased access to public equity markets (Megginson et al., 1994; Boubakri and Cosset, 1998). Most studies document leverage declines in firms after privatization, especially after SIPs (Megginson, Nash and Randenborgh, 1994; Boubakri and Cosset, 1998). Following Megginson et al. (1994) and Sun and Tong (2003), we measure leverage using the total debt to total assets (LEV) and the operating cash flow to total debt (OCF/TD). OCF/TD implies "a firm's ability to cover total debt with the yearly cash flow" (Gibson, 1995).

Panel A in Table 3 illustrates that the mean (median) LEV declines significantly at the 1% level after the SIPs. However, we should note that the decrease of LEV after the first round privatization is a result of a significant increase of equity. Due to data limitation, LEV is the only leverage measure we could use in the first round of privatization. However, Panel B in Table 3 shows that leverage increases after the NTS reform. The mean and median LEV increases are significant at the 5% and 1% levels, respectively. Meanwhile, the measure of OCF/TD shows declines in mean and median although the changes are not statistically significant. The reason for the leverage increase following the NTS reform could be that borrowing is still a major source for fund-raising in China, as there are strict criteria for issuing seasoned equity offerings and the corporate bond market is still underdeveloped. In addition, borrowing might be necessary to pay for the compensation to the tradable shareholders during the NTS reform.

4.2 Results on regression analyses

4.2.1 Impact of the NTS reform on firm profitability

Our results in Section 4.1 show that profitability, output, operating efficiency and employment all improve significantly after the NTS reform, and the changes on profitability ratios after the NTS reform are the opposite to those after the first round privatization. To further confirm our results and understand the relationship between the change of profitability ratios and the NTS reform, we conduct panel data analysis utilizing 563 sample firms for the time period from 1999 to 2010. We create a reform year dummy which equals one for the reform year and post-reform years and expect the dummy variable to be positively related to ROS and EBITS. Consistent with our hypothesis 1, Table 4 shows that the coefficients on the reform year dummies are positive at the 1% significance level[13] Among the control variables, firm size shows a positive impact on ROS and EBITS, whereas a high debt ratio has a negative impact on ROS and EBITS as one would expect. On the other hand, the coefficients on BOARD and INDEP/BOARD are both insignificant. Interestingly, the result suggests that the GDP growth has a negative impact on firm profitability after controlling for location and industry fixed effect.

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[13] We have tested for heteroskedasticity, and there is no concern on this issue.

Table 4. Panel data regression analysis on the impact of the NTS reform on firm performance

This table presents empirical results of the panel data regression on the impact of the NTS reform on firm profitability:
$Profitability_{it} = \alpha_{it} + \beta_1 YRDUM_{it} + \beta_2 SIZE_{it} + \beta_3 LEVE_{it} + \beta_4 BOARD_{it} + \beta_5 INDEP/BOARD_{it} + \beta_6 GDP_{it} + \varepsilon_{it}$
Profitability measures include ROS and EBITS. ROS is the return on sales and EBITS is the operating income per sales. YRDUM is a dummy variable that takes the value of one in the NTS reform year and post-reform years, otherwise equals zero. SIZE is the natural logarithm of total assets. LEVE is the ratio of total debt to total assets. BOARD is the natural logarithm of total number of directors on the board, while INDEP/BOARD is the percentage of independent directors on the board. GDP is the annual growth of real GDP. The panel data consists of 563 listed firms during the period 1999 to 2010. Meanwhile, we control location dummies and use industry fixed-effect regression. There are total 6548 firm- year observations. In addition, we have tested for heteroskedasticity and there is no concern on this issue. *** indicates significance at the 1% level. ** indicates significance at the 5% level. * indicates significance at the 10% level.

	ROS	EBITS
YRDUM	0.0924***	0.0916***
SIZE	0.0483***	0.0616***
LEVE	-0.2554***	-0.3390***
BOARD	-0.0261	-0.0142
INDEP/BOARD	0.0465	0.0569
GDP	-0.0227***	-0.0246***
Observations	6548	6548
Location Dummies	Yes	Yes
Industry fixed effect	Yes	Yes
R²	0.1209	0.1604

4.2.2 Impact of state control on firm profitability

Table 5 reports the panel data regression results on the impact of state control on firm profitability[14]. Panel A shows the results with industry-, location-, and year-fixed effect, Panel B shows the results with firm fixed effect as the use of firm-fixed effects helps mitigate the effects of firm-specific characteristics that are not controlled for but may have an impact on profitability.

Overall, ownership concentration has a significantly positive impact on ROS and EBITS. This result is consistent with those of Ng, Yuce and Chen (2009), Wang, Xu and Zhu (2004), and Ma, Naughton and Tian (2010). However, the coefficient on the state control dummy is significantly negative, indicating that although ownership concentration has a positive impact on firm profitability, the ownership concentration identity is crucial on this relationship. Given the state control and the legal person control are the two major ownership concentration identities in China, we re-run this regression using the largest shareholding and legal person control dummy and find that the positive impact of ownership concentration on firm profitability is mainly driven by the legal person control. Our results are consistent with Sun and Tong (2003) in that legal person ownership has a positive impact, while state ownership has a negative impact on firm performance. All other control variables have the similar effects on profitability as shown in Table 4.

4.2.3 Cross sectional analysis

Table 6 shows the impact of ownership concentration change (between the three-year before and three-year after the NTS reform) on firm profitability changes (between the three-year before and three-year after the NTS reform)[15]. The results show that the change of state control has significantly negative impact on firm profitability change, indicating that the significant improvement of firm profitability after the NTS reform is driven by the decrease of the state control. Our results confirm hypothesis 2 and provide the evidence that state control relinquishment is a key determinant for performance improvement of privatized firms, as in Boubakri et al. (2005).

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[14] We have tested for heteroskedasticity, and there is no concern on this issue.

[15] We have tested for heteroskedasticity, and there is no concern on this issue.

Table 5. Panel data analysis of the impact of state ownership concentration on firm performance

This table presents empirical results of the impact of ownership concentration on firm performance: Profitability$_{it}$ = α$_{it}$ + β$_1$LASH $_{it}$ + β$_2$STLAD $_{it}$/LPLAD $_{it}$ + β$_3$SIZE$_{it}$ + β$_4$LEVE$_{it}$ +β$_5$BOARD$_{it}$ + β$_6$INDEP/BOARD$_{it}$ + εit.
Panel A reports the results of industry-, location- and year-fixed effect, and Panel B reports the results of firm fixed effect. We also conduct the Granger causality regressions to address possible endogenous concern. The results are not reported and available on requests.
Profitability refers to ROS and EBITS. ROS is the return on sales and EBITS is the operating income per sales. LASH is the percentage of shares held by the largest shareholder. STLAD is a dummy equal to 1 if the largest shareholder is a state agent or a state-owned company, otherwise equal to 0. LPLAD is a dummy equal to 1 if the largest shareholder is a legal person, otherwise equal to 0. SIZE is the natural logarithm of total assets. LEVE is the ratio of total debt to total assets. BOARD is the natural logarithm of the total number of directors on the board, while INDEP/BOARD is the percentage of independent directors on the board. We have tested for heteroskedasticity, and there is no concern on this issue.
*** indicates significance at the 1 percent level. ** indicates significance at the 5 percent level. * indicates significance at the 10 percent level.

		ROS	EBITS	
LASH	0.0014***	0.0015***	0.0012***	0.0013***
STLAD	-0.0150*		-0.0237***	
LPLAD		0.0382***		0.0396***
SIZE	0.0451***	0.0462***	0.0595***	0.0603***
LEVE	-0.2541***	-0.2564***	-0.3388***	-0.3407***
BOARD	-0.0136	-0.0116	-0.0025	-0.0014
INDEP/BOARD	0.0517	0.0478	0.0574	0.0563
Observations	6548	6548	6548	6548
Location Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
$_R$2	0.1223	0.1242	0.1651	0.1664
Panel B:				
	ROS		EBITS	
LASH	0.0014***	0.0012***	0.0012**	0.0009*
STLAD	-0.0349***		-0.0524***	
LPLAD		0.0659***		0.683***
Observations	6548	6548	6548	6548
Year Dummies	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
$_R$2	0.1180	0.1189	0.1622	0.1635

Table 6. Cross sectional regression analysis of the impact of state ownership concentration change on firm performance change

This table presents empirical results of the cross-sectional regression analysis of the impact of state control change on firm performance change based on the following model:
Profitability$_i$ = α$_i$ + β$_1$ STLA$_i$ (and LPLA$_i$) + β$_2$ SIZE$_i$ + β$_3$ LEVE$_i$ +β$_4$ BOARD$_i$ + β$_5$ INDEP/BOARD$_i$ + ε$_i$
" " is to use the three-year after reform measures minus the three-year before reform measures. Profitability refers to ROS and EBITS. ROS is the return on sales and EBITS is the operating income per sales. STLA represents the fraction of shares owned by the state if the largest shareholder is the State. LPLA represents the fraction of shares owned by the legal persons if the largest shareholder is a legal person. SIZE is the natural logarithm of total assets. LEVE is the ratio of total debt to total assets. BOARD is the natural logarithm of the total number of directors on the board, while INDEP/BOARD is the percentage of independent directors on the board. Meanwhile, we control location dummies, year dummies and industry dummies. This sample consists of 544 out of 563 total sample firms due to some missing data. The robust standard errors are clustered by industry. In addition, we have tested for heteroskedasticity, and there is no concern on this issue. *** indicates significance at the 1% level. ** indicates significance at the 5% level. * indicates significance at the 10% level.

	ROS		EBITS	
STLA	-0.0011**	-0.0000	-0.0029***	-0.0014***
LPLA		0.0028**		0.0037**
SIZE	0.0720	0.0649	0.1590**	0.1497**
LEVE	-0.1887**	-0.1814**	-0.2586**	-0.2489**
BOARD	0.1035**	0.1028**	0.1362*	0.1351*
INDEP/BOARD	0.1935	0.1528	0.3307	0.2767
Observations	544	544	544	544
Location Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes
R^2	0.1450	0.1602	0.2136	0.2354

To check the robustness of this result, we add the change of legal person control between the three-year before and three-year after the NTS reform as an additional independent variable.

The results on the impact of state control change on profitability change remain.

5. Conclusions

We examine the impact of the NTS reform on firm operating performance using a sample of 563 listed SOEs that were partially privatized through share issue privatizations from 1994 to 1998, and then took part in the NTS reform from 2005 to 2008. We find evidence of significant improvements in profitability, output, operating efficiency and employment, but an increase of firm leverage after the NTS reform. In comparison with the performance change of the sample firms after the first round privatization, the major difference is that the profitability measures of ROS and EBITS increase significantly following the NTS reform while these two measures decline significantly after SIPs.

Overall, our findings suggest that in comparison with the SIPs (the first round privatization) the NTS reform in China has a greater success on firm operating performance, especially on profitability. Therefore, making non-tradable shares tradable has been an important step in the development of China's stock markets. Our regression analysis also confirms that the NTS reform does have a significantly positive impact on firm profitability and decrease of the state control is a significant determinant for profitability improvement in these firms.

References:

1. Beltratti, A., Bortolotti, B., Caccavaio, M., 2010. Fiat privatization: the Non-tradable Share Reform and stock market fundamentals in China. Under pressing.
2. Boubakri, N., Cosset, J.C., 1998. The financial and operating performance of newly privatized firms: Evidence from developing countries. *The Journal of Finance* 53, 1081-1110.
3. Boubakri, N., Cosset, J.C., Guedhami, O., 2005. Liberalization, corporate governance and the performance of privatized firms in developing countries. *Journal of Corporate Finance* 11, 767-790.
4. Boycko, M., Shleifer, A., Vishny, R.W., 1994. Voucher privatization. *Journal of Financial Economics* 35, 249-266.
5. Chen, G., Firth, M., Xu, L., 2009. Does the type of ownership control matter? Evidence from China's listed companies. *Journal of Banking & Finance* 33, 171-181.
6. Claessens, S., Djankov, S., 1998. Politicians and firms in seven Central and Eastern European countries. *World Bank Policy Research Working Paper No. 1954*.
7. Dewenter, K., Malatesta, P.H., 2001. State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labor intensity. *American Economic Review* 91, 320-334.
8. D'Souza, J., Megginson, W.L., and Nash, R.C., 2001. Determinants of performance improvements in privatized firms: The role of restructuring and corporate governance. *Paper presented at the annual meeting of the American Finance Association*, New Orleans, LA.
9. D'Souza, J., Megginson, W.L., Nash, R.C., 2005. Effect of institutional and firm-specific characteristics on post-privatization performance: Evidence from developed countries. *Journal of Corporate Finance 11*, 747-766.
10. Gibson, C., 1995. *Financial Statement Analysis: Using Financial Accounting Information*, 6th Edition. South-Western College Publishing, Cincinnati, OH.
11. Gupta, N., 2005. Partial Privatization and Firm Performance. *The Journal of Finance* 60, 987-1015.
12. Huang, G.H., Song, F.M., 2005. The financial and operating performance of China's newly listed H-firms. *Pacific-Basin Finance Journal* 13, 53-80.
13. Huang, Z., and Wang, K., 2011, Ultimate privatization and change in firm performance: Evidence from China, *China Economic Review* 22, 121-132.
14. Jiang, B.B., Laurenceson, J., Tang, K.K., 2008. Share reform and the performance of China's listed companies. *China Economic Review* 19, 489-501.
15. Jiang, G.H., Yue, H., Zhao, L.K., 2009. A re-examination of China's share issue privatization. *Journal of Banking & Finance* 33, 2322-2332.
16. Kikeri, S., Nellis, J., Shirley, M., 1992. Privatization: The lessons of experience. *World Bank*.
17. Li, K., Wang, T., Cheung, Y.I., Liang, P. 2011. Privatization and risk sharing: Evidence from the split share structure reform in China, *Review of Financial Studies* 24, 2499-2525.
18. Liao, L., Liu, B.B., Wang, H., 2014 (Forthcoming). China's secondary privatization: Perspectives from the Split-Share Structure Reform, *Journal of Financial Economics*.
19. Lin, Y., Cai, F., Zhou, L., 1998. Competition, policy burdens, and state-owned enterprise reform. *American Economic Review* 88, 422-427.
20. Liu, Q., Tian, G., 2012. Controlling shareholder, expropriations and firm's leverage decision: Evidence from Chinese Non-tradable share reform, *Journal of Corporate Finance* 18, 782– 803.
21. Long, L., Tsui, A.K., Zhang, Z.Y., 2014. Conditional Heteroscedasticity with Leverage Effect in Stock Returns: Evidence from the Chinese Stock Market, *Economic Modelling* 37, 89–102.
22. Luo, J.H., 2007. Non-tradable Share Reform and corporate governance. *Enterprise and Economics* 1, 23-54. (Chinese)
23. Ma, S., Naughton, T., Tian, G., 2010. Ownership and ownership concentration: Which is important in determining the performance of China's listed firms? *Accounting and Finance* 50, 871-897.
24. Megginson, W.L. (2005). *The financial economics of privatization*. New York: Oxford University Press.
25. Megginson, W.L., Nash, R.C., Randenborgh, M.V., 1994. The financial and operating performance of newly privatized firms: An international empirical analysis. *Journal of Finance* 49, 403-452.
26. Megginson, W.L., Netter, J.M., 2001. From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature* 39, 321-389.
27. Ng, A., Yuce, A., Chen, E., 2009. Determinants of state equity ownership, and its effect on value/performance: China's privatized firms. *Pacific-Basin Finance Journal* 17, 413-443.
28. Omran, M., 2002. Initial and after market performance of Egyptian share issue privatization. Working paper,

Arab Monetary Fund- Economic Policy Insistute, Abu Dhab.

29. Shleifer, A., 1998. State versus private ownership. *Journal of Economic Perspectives* 12, 133-150.

30. Shleifer, A., Vishny, R., 1986. Large shareholders and corporate control. *Journal of Political Economy* 94, 461-488.

31. Shleifer, A., Vishny, R., 1997. A survey of corporate governance. *Journal of Finance* 52, 737-777.

32. Sun, Q., Tong, H.S., 2003. China shares issue privatization: the extent of its success. *Journal of Financial Economics* 70, 183-222.

33. Wang, X., Xu, L.C., Zhu, T., 2004. State-owned enterprise going public: The case of China. *Economics of Transition* 12, 467-487.

34. World Bank., 1995, *Bureaucrats in business: The economics and politics of government ownership*. New York: Oxford University Press.

35. Wu, X.Q., 2006. The theory issue of Non-tradable Share Reform. *Finance and Economics* 2, 56-79. (Chinese)

36. Xu, X., Wang, Y., 1997. Ownership structure, corporate governance, and corporate performance: The case of Chinese stock companies. Policy Research Working Paper 1794, The World Bank, Washington, DC.

37. Yeh, Y.H., Shu, P.G., Lee, T.S., Su, Y.H., 2009. Non-Tradable Share Reform and Corporate Governance in the Chinese Stock Market. *Corporate Governance: An International Review* 17, 457–475.

APPENDIX A

Definitions of operating performance measures utilized in the t-test and the Wilcoxon z-test

This table reports the definitions of the performance measures we utilize in Table 3, which examines performance changes arising from the two reforms. Real net profit is calculated by adjusting a firm's annual net profit with the annual inflation rate. The figures are then normalized to one in the year the firm privatized so other year figures are defined as a fraction of the year of privatization. Real EBIT and real sales are computed similarly. Likewise, operating efficiency is calculated using the same procedure but is in thousand dollars per employee. Also, EBIT refers to earnings before interests and tax (or called "operating profit" in China).

Characteristics	Proxies	Formula
Profitability	Return on Sales (ROS)	ROS= Net Profit/ Sales
	EBIT to Sales (EBITS)	EBITS= EBIT/ Sales
	Return on Assets (ROA)	ROA= Net profit/ Assets
Absolute Earnings	Real Net Profit (RNP)	RNP= Net Profit/ Consumer Price Index (CPI)
	Real EBIT (REBIT)	REBIT= EBIT/ CPI
Operating Efficiency	Sales Efficiency (SALEFF)	SALEFF= Real Sales/ Number of Employees
	Net Profit Efficiency (NPEFF)	NPEFF= Real net profit/ Number of Employees
	EBIT Efficiency (EBITEFF)	EBITEFF= Real EBIT/ Number of Employees
Output	Real Sales (SAL)	SAL= Nominal Sales/ CPI
Employment	Total Employment (EMPL)	EMPL= Total Number of Employee
Leverage	Debt to Assets (LEV)	LEV= Total Debt/ Total Assets
	The Operating Cash Flow to Total Debt (OCF/TD)	OCF/TD= The Operating Cash Flow/ Total Debt

APPENDIX B

Definitions of explanatory variables used in regression analyses

The following table defines the empirical variables used in our regression models to identify potential determinants of profitability changes.

Proxy	Variable	Expected sign	Measure
YRDUM	The reform year dummy	+	Take the value of one in the NTS reform year and post-reform years, otherwise equal zero.
SIZE	Size of firms	+	Natural logarithm of total assets
LEVE	Leverage of debt	-	Total debt divided by total assets
BOARD	The size of firm board	+/-	Natural logarithm of the total number of directors on the board
INDEP /BOARD	Independent directors/board	+/-	Percentage of independent directors on the board
GDP	Growth in gross domestic product	+	Annual growth of real GDP
LASH	Largest shareholding	+	Percentage of shares held by the largest shareholder
STLA	Ratio for state control	-	Percentage of the shares held by the largest shareholder, which is a state agent or a state-owned company
LPLA	Ratio for legal person control	+	Percentage of the shares held by the largest shareholder, which is a legal person
STLAD	State control dummy	-	Equal one if the largest shareholder is a state agent (or a state-owned company), otherwise equal zero.
LPLAD	Legal person control dummy	+	Equal one if the largest shareholder is a legal person, otherwise equal zero.
Location	Location of sample firms	+/-	A dummy equals one if the firm is located in a particular region, otherwise equals zero. The East region includes Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, and Hainan; the Central region includes Shanxi (Taiyuan), Anhui, Jiangxi, Henan, Hubei, and Hunan; the West region includes Inner Mongolia, Guangxi, Chongqin, Sichuan, Guizhou, Yunnan, Tibet, Shanxi (Xi'an), Gansu, Qinghai, Ningxia, and Xinjiang; the Northeast region includes Liaoning, Jilin, and Heilongjiang.
Industry	Industry classification of sample firms	+/-	A dummy equals one if the firm is from a particular industry, namely commerce, conglomerates, properties, finance, industrials and public utility.

COMMODITY PRICES AND STOCK MARKET PERFORMANCE IN SOUTH AFRICA

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Abstract

As an export based economy, commodity prices and stock market performances are always a course for concern in the South African economy. This paper investigates the effects of the commodity prices and selected macroeconomic variables on stock market performance. The paper uses quarterly time series data and the estimation covers the period 1994 to 2013. Using Engle-Granger two steps econometric technique, the underlying series are tested for univariate characteristics of the variables unit root by employing the Augmented Dickey-Fuller, Phillips-Perron and Kwiatkowski-Phillips-Schmidt-Shin test statistics. The findings show that an increase in commodity prices is associated with an increase in stock market performance and there is a positive association between stock market and macroeconomic such as money supply and exchange rate in South Africa.

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1. Introduction

As an export based economy, commodity prices and stock market performances are always a course for concern in the South African economy. According to Hassan and Salim (2011) commodity price is thought to be a significant variable in conducting monetary policy. The premise is that it conveys information about the future movements in general price level. This is based on the fact that they are used as important inputs into production of manufactured goods. Therefore any change in their price directly affects production cost and the general price level. Any movement in commodity price may also signal the probable direction of future price level. As far as stock market is concerned, Nordin et al. (2014) argue that the rise in the stock market index has always been associated with the booming of the market and vice versa. Since a stock market index measures the performance of stock prices, fluctuations in the existing stock prices are indeed being reflected in the stock market index. Eita (2012) points out that the stock markets allow companies to acquire capital easily and efficiently because they create a market for efficient business transactions to take place. They are also important stimulants to economic development because they provide alternatives to debt financing.

Despite the important role played by commodity prices and stock market in the economy, studies on the relationship between these two variables in South Africa are limited. To the best of our knowledge inadequate attention has been given to this aspect in South Africa. Creti et al. (2012) maintains even though commodity markets share several characteristics with stock markets and financial assets, so far literature has analysed this phenomenon mainly by focusing on oil, and looking at the co-movements between stock and oil markets. Most of the literature offers substantial evidence on the impact of oil on stock prices, putting forward the negative relationship between oil price and stock market returns. Another novelty of this study is that according to Rahman *et al.* (2009) prior studies on the determinants of stock return primarily focus on the well developed markets with less attention to the emerging ones. Therefore this study attempts to take advantage of this research gap to investigate the effects of the commodity prices and selected macroeconomic variables on stock market performance in order to extend the existing literature in the South African context. The study uses typical selected macroeconomic variables such as

exchange rate, inflation rate and money supply. Apart from that we employ two variables representing commodity prices (gold price and platinum price) which are considered most important for the South African economy.

Determining such a relationship is not only imperative for academic standpoint but also for policy viewpoint. This sentiment is echoed by Arezki *et al.* (2012) who maintain that given the very high level of volatility in commodity prices, it is important for resource rich countries in general to understand better the relationship between volatility in commodity prices and fluctuations in their macroeconomic variables such as exchange rate. The challenge is more massive in relation to the case of South Africa. The country is reeling from worker strikes and a falling commodity prices. At the same time it is facing fresh challenges in drawing investors to its resource-rich economy. South Africa is regarded is as a trove of precious metals and coal, and is believed to have the world's largest reserves of platinum. But some companies say they are reassessing their business as labour strikes upend production and hurt exports (Maylie and Mcgroarty, 2014). This situation is a cause for concern because according to Hawthorne *et al.* (2005) a substantial proportion of South Africa's export is made up of commodities such as platinum (10.13% of total exports), gold (9.53% of total exports) and coal (6.16% of total exports). They fall amongst top five commodities exported.

Just like many other export based economies, South Africa is also faced with large terms of trade fluctuations which render its real exchange rate volatile. The highly unstable nature of the exchange rate presents a challenge to both policy makers and investors in terms of consumption and investment decision making processes. According to UNCTAD (2012) resource-based economies with floating exchange rates that try to stem inflationary pressure by monetary tightening may face an additional problem in the form of currency appreciation exceeding levels that could be expected on the bases of macroeconomic fundamentals. The objective of this study is to investigate the effects of the commodity prices and selected macroeconomic variables on stock market performance in South Africa using Engle and Granger (1987) approach.

The rest of the paper is organised as follows. Section 2 provides theory and literature review of the study. Section 3 discusses empirical model, estimation techniques and data. Estimation of the results is presented in Section 4 and the study is concluded in Section 5.

2. Theory and Literature Review

The nature of variables used in this study calls for a scrutiny of several theories and empirical literature which are relevant to this investigation. Nordin *et al.*

(2014) investigated the role played by the commodity price in influencing the stock market index. They concluded that the price of palm oil is positively significant in influencing the stock market index in Malaysia. Chan and Faff (1998) found out that there has been a widespread sensitivity of the Australian industry returns to gold price returns, over and above market returns. The sensitivity is found to be of positive sign for the resource and mining sector industries, whereas it is of negative sign for the industrials sector.

The theoretical linkage between the macroeconomic factors and the stock mark can be obtained from the present value model or the dividend discount model (DDM) and the arbitrage pricing theory (APT). The present value model focuses on the long run relationship whereas the APT focuses on the short run relationship between the stock market movement and the macroeconomic fundamentals. Any new information about the fundamental macroeconomic factors such as inflation, money supply, real interest rate, etc. may influence the stock price (Naik and Padhi, 2012). The APT theoretical framework developed by Ross (1976) links the stock returns to several variables that characterise several sources of income volatility. The general idea behind this framework is that macroeconomic influences and asset sensitivity to those can explain the expected return on a financial asset.

Dornbusch and Fischer (1980)'s flow orientated model postulates that exchange rate movements cause stock price movements. According Richards *et al.* (2009) this model is built on the macroeconomic view that as the stock prices represent the discounted present value of a firm's expected future cash flow, then any phenomenon that affects a firm's cash flow will be reflected in that firm's stock price if the market is efficient as the Efficient Market Hypothesis suggests. They conducted a study examining the interaction between stock prices and exchange rates in Australia. The empirical analysis provides evidence of a positive cointegrating relationship between these variables, with Granger causality running from stock prices to the exchange rate during the sample period. Although they did not include commodity prices, the significance of the results lends support to the notion that these two key financial variables interacted in a manner consistent with the portfolio balance that is stock price movements cause changes in the exchange rates. Patel (2012) investigated the effects of macroeconomic determinants on the performance of the Indian Stock Market for variables such as money supply, interest rates, inflation, gold price, silver price, oil price, index of industrial production, etc. The study established that there is a long run relationship between macroeconomic variables and the stock market indices. The causality runs from exchange rate to stock market indices to index of industrial production and oil price.

In a related study by Kaehler *et al*. (2013) found out that exchange rate is negatively correlated with Iraqi Stock Market (ISX). The appreciation of the Iraqi dinar against the US dollar by 100 units would, on average lead to a rise of the ISX by 57.9 points. The interest rate also plays a crucial role in explaining the movement of the ISX index because an increase in interest rates is followed by a decrease of the stock market index.

The relationship between money supply and stock price is still ambiguous (Naik and Padhi, 2012). Hosseini *et al*. (2011) indicate that money supply is likely to affect the stock market index through at least three ways: first, innovations in the money supply may be correlated to unexpected increase in inflation and future inflation uncertainty and thus, negatively correlated to stock market index. Second, innovations in the money supply may positively affect the stock market index through its effect on economic activity. Finally, portfolio theory says that a positive relationship exists, since it relates a rise in the money supply to a portfolio change from noninterest bearing money to financial assets including equities. The effects of money supply on stock market is also support by Rozeff (1974)'s monetary portfolio theory which postulate that the volatility of money supply alters the equilibrium position of money, hence altering the composition and assets price in an investor's portfolio.

3. Empirical Method

3.1 Empirical Model

Following an extensive review of the theoretical and empirical literature on the effects of commodity prices and selected macroeconomic variables on stock market performance (returns), the empirical model is specified as follows:

$$SMK_t = f(\overset{-/+}{P_t}, \ \overset{-/+}{ER_t}, \ \overset{-/+}{M_t}, \ \overset{+}{GOLD_t}, \ \overset{+}{PLATINUM_t}) \quad (1)$$

where *SMK, P, ER,* and *M* are stock market performance, inflation, exchange rate and money supply respectively. Variables *GOLD* and *PLATINUM* are two measures of commodity prices. Equation (1) specifies stock market performances as a function commodity prices and other macroeconomic variables such as inflation, exchange rate and money supply. The effect of commodity prices on stock market is expected to be positive. However, the effect of other macroeconomic variables on the stock market is an empirical question.

3.2 Estimation Technique

This study use the Engle-Granger two steps econometric technique Engle and Granger (1987) in order to test the effect of commodity prices and selected macroeconomic variables on the stock market performance. This technique involves determination of the long-run cointegration relationship between the variables. This is done through testing of stationarity of the residuals using unit roots tests such as Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test statistics. Non-stationarity of the variables is taken care of by estimating the error correction model (ECM). The Engle-Granger two steps estimation technique is explained as follows:

$$Y_t = \overset{\wedge}{Y_t} + \mu_t = \overset{\wedge}{\phi_0} + \overset{\wedge}{\phi_1} X_t + \mu_t \quad (2)$$

The existence of a long-run cointegrating relationship between *X* and *Y* is important in this estimation technique. It is also important for the properties of the error term to be stationary (Damoense-Azevedo, 2013). The residuals from regressing *Y* on *X* in Equation (2) are derived as expressed in Equation (3):

$$\mu_t = Y_t - \overset{\wedge}{Y_t} \quad (3)$$

Unit root test statistics are used to test if the residuals (μ_t) generated in Equation (3) are stationary. If they are stationary, then it means that the variables are cointegrated. In other words, *X* and *Y* are cointegrated. The existence of cointegration between the variables suggests that it is appropriate to proceed to the second step, which is estimation of the error correction model (ECM). The ECM is specified as follows:

$$\Delta Y_t = \alpha_0 + \alpha_1 \Delta X_t + \eta ECM_{t-1} + \varepsilon_t \quad (4)$$

where Δ indicates that the variables are in a differenced form, α_0 represent short run elasticity and η denotes the speed of adjustment to long-run equilibrium. ECM_{t-1} and ε_t are the error correction term and residual term of the short-run equation respectively. ECM_{t-1} is the lagged residuals generated in Equation (3). If there is an adjustment to equilibrium, η is expected to be negative and statistically significant. The ADF, PP and KPSS test statistics are used to test the univariate characteristics of the variables.

3.3 Data

The study uses quarterly data and the estimation covers the period 1994 to 2013. The Johannesburg Stock Exchange (JSE)'s is used as a measure of stock market performance. The data for this variable were obtained from the IMF's International Financial Statistics. Two measures of commodity prices are

used in this study. These are gold (*GOLD*) and platinum (*PLATINUM*) prices. The data for gold prices were obtained from the IMF's International Financial Statistics, while those of platinum prices were obtained from Platinum Today's website (http://www.platinum.matthey.com/prices/price-charts). The data for money supply proxied by M2 (*M*), exchange rate of South African Rand per USA dollar (*ER*) and inflation represented by the consumer price index (*P)* were all obtained from the IMF's International Financial Statistics. The estimations are done with all variables in logarithms.

4. Estimation Results

4.1 Unit Root Test

The performance of the unit root test is the first step before estimating Equation (1). This involves univariate characteristics of the variables. The purpose of the test is to determine whether the variables are stationary or nonstationary. The results are presented in Table 1 and they indicate that all the variables are I(1). The implication is that they are nonstationary at levels and stationarity is obtained only after differencing.

Table1. Unit root test results

Variables	Model	ADF		PP		KPSS	
		Levels	Differences	Levels	Differences	Levels	Differences
LnSMK	InterceptTrend & intercept	-1.23 -1.79	-8.03*** -7.98***	-1.34 -2.14	-8.10*** -8.05***	1.02### 0.11	0.07 0.05
LnP	Intercept Trend & intercept	-1.18 -3.14	-5.38*** -5.46***	-1.31 -2.65	-5.39*** -5.48***	1.24### 0.09	0.16 0.07
LnM	Intercept Trend & intercept	-2.35 -0.42	-2.59* -8.08***	-2.27 -0.50	-7.60*** -8.05***	1.24### 0.19##	0.41 0.11
LnER	Intercept Trend & intercept	-1.63 -1.90	-7.88*** -7.84***	-1.71 -2.10	-7.90*** -7.85***	0.75### 0.18##	0.11 0.08
lnGOLD	Intercept Trend & intercept	0.08 -1.92	-6.41*** -6.53***	0.19 -1.89	-6.40*** -6.53***	1.01### 0.28###	0.41 0.20
LnPLATI NUM	Intercept Trend & intercept	-0.81 -3.42*	-7.23*** -7.18***	-0.83 -2.60	-6.50*** -6.43***	1.18### 0.14#	0.09 0.10

Notes: ***/**/* denotes rejection of the null of unit root at 1%/5%/10% significance level.
  ###/##/# indicates rejection of o the null of stationary at 1%/5%/10% significance level.

4.2 Estimation Results

Equation (5) presents the long-run results of the effects of the commodity prices and selected macroeconomic variables on stock market performance in South Africa. The t-statistics are squared brackets.

$$\ln SMK_t = -34.05 + 0.16 \ln GOLD_t + 0.41 \ln PLATINUM_t + 1.92 \ln M_t + 0.59 \ln ER_t$$
$$[-10.4] \quad [2.17] \qquad [3.98] \qquad\qquad [10.45] \qquad [5.05]$$
$$-4.18 \ln P_t$$
$$[-10.20]$$

$$R - squared : 0.93$$
$$Adjusted\ R - squared : 0.93$$

(5)

Equation (5) shows that an increase in commodity prices is associated with an increase in stock performance. An increase of 1% in gold price will results in stock market performance to increase by 0.16%. If platinum prices increase by 1% stock market performance will increase by 0.41%. Macroeconomic variables such as money supply and depreciation of the exchange rate are also associated with an improvement in stock market performance.

The residuals from Equation (5) were tested for stationarity using ADF and PP test statistics and the results indicated that they are stationary. This means that there is cointegration between stock market performance and explanatory variables. It is now appropriate to proceed to the next step, which is the ECM. The results of the ECM are presented in Equation (6).

$$\Delta \ln SMK_t = -2.36 \Delta \ln P_t + 0.43 \Delta \ln PLATINUM_t - 0.23 \Delta \ln PLATINUM_{t-1} \quad +$$
$$[-2.76] \qquad [4.54] \qquad\qquad [-2.36]$$

$$0.34 \Delta \ln PLATINUM_{t-2} - 0.19 \Delta \ln PLATINUM_{t-3} + 0.93 \Delta \ln M_t$$
$$[3.29] \qquad\qquad [-1.91] \qquad\qquad [2.59]$$

$$+ 0.84 \Delta \ln M_{t-1} + 0.27 \Delta \ln ER_t - 0.09 DUM08 - 0.24 ECM_{t-1}$$
$$[2.30] \qquad\qquad [2.22] \qquad\qquad [-3.04][-3.09]$$

$$R - squared : 0.53$$

$$Adjusted \ R - squared : 0.47$$

(6)

The results of Equation (6) show that all variables are statistically significant. The coefficient of ECM is statistically significant. The ECM coefficient shows that there is adjustment to equilibrium. It suggests a moderate speed of adjustment equal to 24% from short-run disequilibrium to the long-run equilibrium. The results passed all diagnostic statistics (Table 2) and this means that there is no violation of the assumptions of the classical linear regression model.

Table 2. Diagnostic Tests

Tests	Type	Test statistics	Probabilities
Normality	JB	1.08	0.58
Serial correlation	LM	0.31	0.73
Heteroskedasticity	ARCH	0.17	0.67
	White	68.17	0.07
Stability	Ramsey	4.48	0.08

Conclusion

The paper investigated the effects of the commodity prices and the selected macroeconomic variables on stock market performance in South Africa using Engle and Granger (1987) approach. The analysis employed the time series quarterly data and the estimation covers the period 1994 to 2013. The study used the selected macroeconomic variables such as exchange rate, inflation rate and money supply and two variables representing commodity prices (gold prices and platinum prices) as regressors. Whilst the Johannesburg Stock Exchange used as a measure of stock market performance acted as the dependent variable.

Our research contributes to the empirical evidence to the debate of the association between the commodity prices and stock markets performance in developing economies. The study also highlights relationship between the selected macroeconomic variables and the stock market performance in South Africa. The cointegration relationship between stock market performance and explanatory variables was established and the findings show that increase in commodity prices is associated with an increase in stock performance in South Africa. This is in line with Nordin *et al*. (2014) and Chan and Faff (1998).

With regard to relationship between the selected macroeconomic variables and the stock market performance, the results suggest that the positive effect of money supply on the stock market performance proposes that an increase in money supply caused inflation to rise and result in an increase in interest rate. This impacted negatively on stock market performance. A negative effect of prices on stock market performance suggests that equities are not a hedge against inflation and this in line with the postulation of Fama (1980). Our results are also in line with Richards et al. (2009) and Patel 2012 who indicated that there is a positive relationship between exchange rate and the stock prices.

References:

1. Arezki, R., Dumitrescu, E., Freytag. A. and Quintyn, M. (2012), Commodity Prices and Stock Market Performance in South Africa. *IMF Working Paper.*
2. Chan, H., and Faff, R. (1998), The sensitivity of Australian industry equity returns to a gold price factor, Accounting *and Finance,* Vol. 38, 223-244.
3. Creti A, Joëts M and Mignon V. (2012), On The Links Between Stock And Commodity Markets' Volatility. *Centre D'études Prospectives Et D' Informations Internationales (CEPII).* Paris.
4. Damoense-Azevedo, M.Y. (2013), Modelling Long-run Determinants of Economic Growth for the Mauritian Economy, *Journal of Developing Areas*, Vol. 47 No.1 pp. 1-21.
5. Dornbusch, R. and Fischer, S. (1980) "Exchange Rates and the Current Account", *American Economic Review* Vol. 70 No.5, pp. 960-971.
6. Eita, JH. (2012), Modelling Macroeconomic Determinants Of Stock Market Prices: Evidence From Namibia, *The Journal of Applied Business Research* Vol. 28 No.5, pp. 871-884.

7. Engle, R..F. and Granger, C.W.J. (1987), Co-Integration and Error Correction: Representation, Estimation and Testing, *Econometrica*, Vol.55 No.2, pp. 251-276

8. Hassan, K. and Salim, R.A. (2011), Is there any Link between Commodity Price and Monetary Policy? Evidence from Australia, Economic *Analysis and Policy,*Vol. 41No.3, pp. 205-215.

9. Hawthorne, R. Nair, R.D. and Bowen, K. (2005), An overview of the impact of the commodity price boom on the South African economy, *Annual Forum: Trade and Uneven Development: Opportunities and Challenges.* Johannesburg: United Nations.

10. Hosseini, .SM., Ahmad, Z. and Lai, Y.W. (2011), The Role fo Macroeconomic Varaibles on Stock Market Index in China and India, *International Journal of Economics and Finance* Vol. 3 No.6, pp. 233-243.

11. Kaehler, J., Weber, C. and Aref. HS-D. (2013), The Iraqi Stock Market: Development and Determinants. *IWE Working Paper.* Erlangen: Friedrich-Alexander University.

12. Maylie, D. and Mcgroarty, P. (2014), Mining Strikes, Price Woes Put South Africa in a Hole, *The Wall street Journal: Africa news.* New York.

13. Naik, P.K. and Padhi, P. (2012), The Impact of Macroeconomic Fundamentals on Stock Prices Revisited: Evidence from Indian Data. *Eurasian Journal of Business and Economics* Vol.5 No.10, pp. 25-44.

14. Nordin, S., Nordin, N. and Ismail, R. (2014), The Impact of Palm Oil Price on the Malaysian Stock Market Performance, *Journal of Economics and Behavioral Studies* Vol. 6 No.1, pp. 1-9.

15. Patel, S. (2012), The effect of Macroeconomic Determinants on the Performance of the Indian Stock Market, *NMIMS Management Review* Vol.22, pp. 117-127.

16. Rahman, A.A., Sidek, N.Z.M., and Tafri, F.H. (2009), Macroeconomic determinants of Malaysian stock market, *African Journal of Business Management* Vol. 3 No.3, pp. 095-106.

17. Richards ND, Simpson J and Evans J. (2009). The Interaction between Exchange Rates and Stock Prices: An Australian Context. *International Journal of Economics and Finance* Vol.1.

18. Ross SA. (1976). The Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory* Vol. 13: pp. 341-360.

19. Rozeff, M.S. (1974), Money and Stock Prices, market efficiency, and lag in the effect of monetary policy, *Journal of Financial Economics*, Vol.1 pp. 245-302.

20. UNCTAD. (2012), Excessive commodity price volatility: Macroeconomic effects on growth and policy options, *United Nations Conference on Trade and Development.* United Nations.

21. Fama, E.F. (1981), Stock returns, Real Activity, Inflation and money, *American Economic Review*, Vol.71 No.4, pp. 545 – 565.