The impact of information and coordination innovation on relationship and firm performance: The case of small and medium enterprises in Indonesia

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Abstract. *It has been acknowledged that small and medium enterprises (SMEs) play essential for contibuting economic growth. Previous findings indicated that networking among SMEs with business partners becomes a determinant factor for improving growth. The coordination capability among channel members in distribution channel for instance, suppliers, manufacturers,distributors, retailers, financial institutions,as well as other relevant agencies, brings competitiveness, which in turn enhances performance. As information sharing and coordination innovation possess a significantly positive influence in improving firm performance among the channel members,a few empirical evidences have been found on the effect of information and coordination innovation in lending on the relationship performance between SMEs and financial institutions(bankings) that led to SMEs' growth. By using structural equation model (SEM) for 103 samples of respondents,it was found that relationship performance led to the growth of SMEs in Indonesia, which in turn contributed to economic growth.*

Keywords: Innovation, information and coordination, relationship performance, firm performance, small and medium enterprises,Indonesia.

1.Introduction

1.1 Background of the Study
For decades,studies have proven that the dominant existence of small and medium enterprises (SMEs) plays crucial parts in the economy for generating employment, adding value, and alleviating poverty (Yhee *et al.,* 2001;Nagai,2007,and Mukhamad *et al.,* 2011). Previous emperical evidence showed that their large number of productive establishments have strengthened national economy foundation due to their abilities in developing the investment per unit enterprise that will support the operational productive activities (Agyapong,2010). However, inspite of their crucial role in the national economy, past studies found that capital access and networking with financial institutions (bankings) become determinant factors for SMEs to achieve success (Hans *et al.*, 2005 and Fatima, 2009).

Information sharing and coordination innovation have brought improvements to the performance. The innovation will create coordination capability that smoothens the productive activity process. According to Lancioni *et al.,* (2000); Maria & Fern'andez (2006); Zhoe & Benton (2007);Campo *et al.,* (2010); Ferri *et al.,* (2012) the use of information and

coordination innovation among channel members (suppliers,manufacturers,distributors, and retailers) with the technology involved, combined with human skills,will provide coordination capability in communications which consequently will enhance competitivenes. According to Nada (2008) directly promoted a precise category of coordination activity that would be able to accomplish both strategical and operational benefits for them.

Nevertheless, despite the benefit of innovation information sharing and coordination among channel members as addressed in literature, further study that examines the effect of information and coordination innovation on the relationship performance between SMEs and financial institutions (bankings) as business partners that leads to SMEs growth have not been conducted thoroughly in Indonesia.

1.2 SMEs in Indonesia
In regards to the SMEs in Indonesia, as Indonesian SMEs are mostly involved in agro-based activities and are located in rural areas, the presence of the sector in the economy and its ability to provide employment in alleviating poverty significantly recognized. According to Indonesian Central Bureau of Statistics in Mukhamad *et al.,* (2011), in 2009, the number of SMEs totaled up to 52.7 million or 99.9 per cent of all establishments in this highly populous country. In terms of job opportunities, Indonesian SMEs provided about 96.2 million employment or 97.3 per cent of the total employment.

Eventhough there are many financial institutions (bankings) that serve SMEs in Indonesia, they still encounter problems, where capital access still becomes the main issue hindering the growth of SMEs besides other leading factors such as marketing,innovation, and managerial skills (Mudrajat,2003;Manginsela,2005 and Tambunan,2009).Despite the government's effort in reducing the problems, they should innovate themselves in order to achieve sustainable competitiveness.

1.3 Objective of the Study
The information and coordination innovation will strengthen the coordination capability,which in turn will enhance growth. However, most studies examined the impact of innovation among channel members, which include suppliers,manufacturers,distributors,retailers and end users of products. On the other hand,studies that emphasize on the effect of innovation on the relationship and firm performance, particularly on SMEs in Indonesia, have not been conducted thoroughly. Hence, the objective of the study is to examine the impact of information and coordination innovation in lending on the relationship performance between SMEs and financial institutions (bankings) that leads to firm performance of SMEs in Indonesia.

2. Literature Review and Conceptual Framework

2.1 Literature Review of Networking between SMEs and Financial Institutions(bankings)
In relation to the role of SMEs scales as an engine for the economy growth, capital access is still considered as the main issue hindering the development of their business (Olawale, 2011;Musara & Olawale, 2011, and Anthony & Thomas, 2012). Hans *et al.,* (2005) showed that the policy of mergers among financial institutions affects the loyalty of customers to establish cooperation in both short-term and long-term. Taylor & Adrew (2006) indicated that having fewer relationships with the number of bankings for SMEs could reduce capital cost due to the trust provided by the banks such as in terms of guarantee, more flexible negotiations, and more concentrations in the relationship. According to the study done by Fatima (2009) on SMEs alliances with financial institutions, it was found that the adaptation ability of financial institutions to the capital needs of SMEs hada significant impact on

customers' satisfaction. A recent study conducted by Daniel (2012) found an interesting finding, where the relationship between SMEs and banking emphasized more on collaterals and covenants rather than trust.

2.2 Conceptual Framework

2.2.1 Information and Coordination Innovation on Performance

An effective information sharing is essential in improving performance. According to the studies conducted by Lancioni *et al.,* (2000),Maria & Fern'andez (2006) and Campo *et al.,* (2010),the use of internet for information sharing has been proven to be able to increase effective cooperation and market knowledge, as well as alliances with clients. Zhou & Benton (2007) suggested that the innovation in coordination applied in cooperation involved the process of adding value for a product from raw material to finished goods becomes a determining factor to increase flexibility in response to changing market conditions. Nada (2008) further suggested that promoting an accurate group of coordination activity directly will handle competitiveness in both strategical and operational benefits. A recent study by Ferri *et al.,* (2012) also proved that innovation and coordination by adopting information technology, research and development (R&D), as well as typical method, are also able to improve effectivity and efficiency.Other relevant topics on the relationship of information and coordination innovation on performance can be seen in Ferri *et al.,* (2012).

2.2.2 Relationship Performance

Relationship performance among entrepreneurs has become a long thought and attention by practitioners and scholars for its role in the development effort. Medlin (2003) emphasized relationship performance as "an achievement in economic terms as a result of entrepreneurship networking".Ural (2008) in a previous study on the effect of relationship quality also found positive and significant on export performance. Tom & Bill (2002) and Daniel (2012) found that the performance of business relationship brought significant and positive impact on their performance.

2.2.3 Firm Performance

Firm performance is defined as the extent in which a firm can achieve success (Shankar, 2010). Morgan *et al.,*(2004) define economic performance of the firm as the point to which firms attain their outcome relating to the competitors in conditions of sales, market share, profitability, and sales returns from new products. Previous studies had engaged a diversity of financial instruments such as income, cash flow, return on assets and equity, and so forth to review a firm's performance (Haber *et al.,* 2005). Meanwhile, Murphy *et al.,* (1996), in his 51 published entrepreneurship examination studies using performance as the dependent variable, found that most of the considered extent of performance are related to efficiency, growth, and profit. Kim (2011) developed performance by measuring sales per employee, total assets, and operation profit ratio.

2.2.4 Theory Background

Wernerfelt (1984) claimed that a company has assets in the form of tangible and intangible assets which are attached to the company. In relation to the resource-based view theory, it explains that a company is uniquely caused by specific assets and services. Penrose (1959) further asserted that a firm is unique because of its typical services offered and asset belonging. The idea concluded that in order to gain competitive advantage the tangible and intangible assets were crucial propositions for achieving the competitiveness. In this case,a collection of resources in use includes managerial and entrepreneurial skills (Penrose,1959 and Siddhartha, 2011).

Figure.1 Conceptual framework
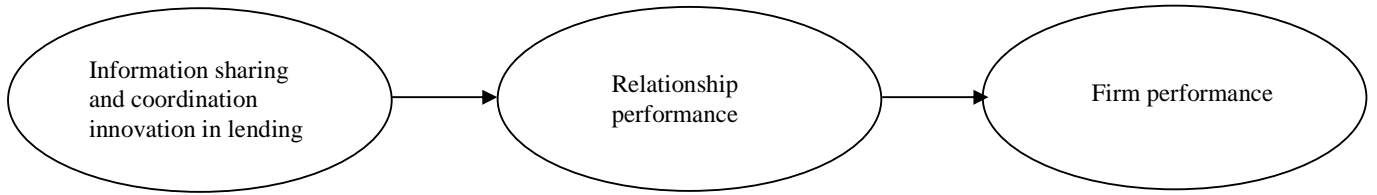
3. Research Methodology

3.1 Data Collection
By using Slovin method in determining the amount of random sampling, the primary data collection process utilized survey method as it has been done by previous studies (Mukhamad *et al.,* 2011; Rosli *et al.,* 2012 and Ferri *et al.,* 2012).Primary data were collected using questionnaires with 5 (five) point likert scale from least emphasized to most emphasized. Meanwhile,secondary data were collected from relevant information gathered through appropriate agencies in the Department of Industry and Trade of Indonesia (2013).

As described in Table 1, the respondents were small and medium enterprises (SMEs) in all sectors that still operated actively in the region of Yogyakarta and its surroundings. Measurement limitation of SMEs is enterprises that engaged in the products and services sectors that have a workforce of less than 100 workers (Indonesian Central Bureau of Statistics & The Ministry of Cooperatives and Small and Medium Enterprises, 1995).

Table1The number of licenced SMEs in Yogyakarta Special District Indonesia

No	Sectors (unit)	2008	2009	2010	2011	2012
1	Medium	1,296	1,548	1,820	1,999	2,142
2	Small	31,119	33,425	35,296	36,607	37,582
	Total	**32,415**	**34,973**	**37,116**	**38,606**	**39,724**

Source: Industry trade department of Indonesia (2013).

3.2 Respondents' Profile
Distribution of the sample referring to the total number of employees, industry sector, and firm's age is shown in Table 2. As observed in Table 2, in terms of the total number of permanent (full time) and non-permanent employees, that the percentage of SMEs that hired 1 - 10 employees was the highest (90%),and the SMES were usually run by family members of the owners. Thus, the SMEs who hired more workers tend to be more professional and managed officially. Surprisingly, there were various SMEs in terms of industry sectors involved in this study. Food and beverage entrepreneurs formed the majority of the respondents (31%),followed by clothing (21%) and electronic (11%) industries. Table 2 also demonstrates that other industries with different characteristics such as photocopy services and stationaries, household and grocery, as well as shoe stores, were represented by 4% of the total establishments. Other industries include financial services, souvenir and handbag handicraft stores, as well as laundry services. As seen in Table 2,for firms'age, most SMEs were individual private companies that have existed for several years. Nonetheless, most of them were engaged in trading. Overall, around 92% SMEs have been in the business for1-15 years.

Table2 Profile of the respondents (SMEs)

Characteristics	SMEs (unit)	Percentage
Total number of permanent(full time) and non-permanentemployees		
1-10	93	90%
11-20	6	6%
21-30	4	4%
Total respondents	103	100%
Industry sector (unit)		
Food and beverage	32	31%
Clothing	22	21%
Electronic	11	11%
Photocopy services and stationaries	6	6%
Household stores	4	4%
Grocery retailers	4	4%
Shoe industries	3	4%
Others	21	21%
Total respondents	103	100%
Firms' age (years)		
1 – 5	43	42%
6 -10	34	33%
11-15	18	17%
16-20	6	6%
<20	2	2%
Total respondents	103	100%

Source:Survey (2014)

3.3 Measurement of Independent,Mediator, and Dependent Variables

Formulation of measurement variables is based on the adoption of prior literature studies. Variables measured in this study consist of three main variables. First, independent variable consists information and coordination innovation in terms lending. Second, the relationship performance between SMEs and financial institutions (bankings) was the mediator variable and third, firm performance was the dependent variable. By using questionnaires with 5 (five) point likert scale scores, the independent variable was measured by the application of available technology, research and development (R&D),as well astypical method used by the respondents adopted from (Kongmanilaa & Takahashib, 2009 and Ferri *et al.,* 2012),which referred to loan of product knowledge,monitorings and proposal that consists of 8(eight) items of constructs.The mediator variable adopted from Medlin (2003); Daniel (2012) and Tom & Bill (2002) referred to trust, quality relationship, responsiveness,information sharing, long-term relationship orientation, and commitment in solving problem for both SMEs and bankings that consists of 7(seven) items of constructs. Meanwhile,SMEs' performance as a dependent variable was adopted from Kongmanila & Takahashib (2009),Murphy *et al.,*(1996) and Mukhamad *et al.,* (2011) by using profitability, sales volume,market share, numbers of customers and sales frequency.

4. Data Analysis and Findings

4.1 Reliability and Normality

The reliability of a survey instrument is generally defined as "the accuracy, stability and relative lack of error in a measuring instrument" (Burns, 2000).The Cronbach's alpha measures the instrument's internal consistency, and an alpha coefficient of 0.7 is quoted as the minimum acceptable level(Pallant,2005).

A perfect normality of data distribution can also be indicated by values of kurtosis and skewness. If the values of skewness and kurtosis are between -2.00 and +2.00, that means the normality of the data distributionis considered acceptable(George & Mallory, 1995). The following values in Table 3 indicated that the coefficient of cronbach's alpha for the variable of information sharing and coordination innovation in lending, relationship performance, and firm performance were above 0.8. And the values of skewness and kurtosis were found between -2.00 and +2.00.

Table 3 Reliability of the constructs and normality of data distribution

Variables	Number of items	Cronbach's alpha	Normality	
			Skewness	Kurtosis
Information sharing and coordination innovation in lending	8	0.925	0.234	-0.482
Relationship performance	7	0.896	-0.319	0.329
Firm performance	5	0.919	-0.030	1.069

Source:Analysis result (2014)

4.2 Structural Model Test

Structural model test can be used to ensure a causal relationship model among independent,mediator and dependent variables. The following Table 4 generated by AMOS.21 showed the result of the fitness of the available data with the model. It was indicated that the degree of freedom had a positive value of 1 and goodness of fit index (GFI), as well as normed fit index(NFI) approached 1 or above 0.90. Hence, it can be concluded that the structural model test is acceptable (Singgih,2012).

Table4 Structural model

Model	Value
Degree of freedom (DF)	1
GFI	0.965
NFI	0.948

Source: Analysis result (2014)

4.3 Findings

As addressed earlier, the implied objective of the study was to investigate the innovation in lending that leads to the performance of SMEs. The following estimation,generated by AMOS. 21 shown in Table 5, had found that the effect of information and coordination innovation in lending and relationship performance led to the growth of SMEs. It was found that information and coordination innovation in lending affected significantly at the level of P value 0.001 on the relationship performance. Whilst the relationship performance also significantly affected firm performance at the level of P value 0.001 on firm performance. Table 6 emphasized the significancy.

Table.5 Regressionweight

			Estimate	S.E.	C.R.	P
Relationship performance	<---	Information and coordination innovation in lending	0.488	0.066	7,421	***
Firm performance	<---	Relationship performance	0.370	0.041	9,098	***

Source : Analysis result (2014). 0.001 : ***

Table.6 Indirect effects

	Information and coordination Innovation in lending	Relationship performance
Relationship performance	0.000	0.000
Firm performance	0.181	0.000

Source : Analysis result (2014). 0.001 : ***

5. Discussion

Referring to the objective of the study, as shown in the table.5 and table.6, the effect of information and coordination innovation in lending on the relationship performance was found significant. These specified results were fortified by the previous findings that the use of internet in information sharing and coordination innovation was capable of enhancing cooperation ability with business partners (Lancioni *et al.,* 2000; Maria & Fern'andez,2006 and Campo *et al.,* 2010). Nada (2008) found that emphasizing in coordination will manage competitiveness in both strategical and operational benefits. The relationship between the relationship performance and firm performance was found significantly relevant with past studies of Tom & Bill (2002) and Daniel (2012) that relationship performance bring economic benefits of firms. Trust, quality relationship, information sharing, long-term relationship orientation, responsiveness, and commitment could generate competitiveness of SMEs.

6. Conclusion

The role of small and medium enterprises (SMEs) in contributing economic growth is essential. However, since capital access has been demonstrated as a major factor for SMEs in developing the economy, the results of the study have indicated that information and coordination innovation enhance competitiveness among channel members and also solve capital access capability for SMEs. It was found that the information and coordination innovation influenced the relationship performance which led to the growth of SMEs. By considering relationship performance,the problems regarding capital access can be solved by applying information and coordination innovation in lending with financial institutions (bankings).

References

Anthony K. Ahiawodzi and Thomas C. Adade.(2012).Access to Credit and Growth of Small and Medium Scale Enterprises in the Ho Municipality of Ghana.*British Journal of Economics, Finance and Management Sciences,* 6(2),34-51.

Agyapong, D. (2010). Micro, Small and Medium Enterprises' Activities, Income Level and Poverty Reduction in Ghana-A Synthesis of Related Literature. *International Journal of Business and Management*, 5(12), 196-205.

Burns, R.B. (2000). Introduction to Research Methods, 4th edition. New South Wales : Longman.

Campo, Natalia Rubio, and Maria Jesus Yague S. (2010). Information Technology Use and Firm's Perceived Performance in Supply Chain Management. *Journal of Business-to-Business Marketing,*17(4), 336-364.

Daniel Badulescu. (2012). SMEs Relationship Banking: Length, Loyalty, Trust. Do SMEs get something in Return? *World Academy of Science, Engineering and Technology,* 66, 45-52.

Fatima Vegholm.(2009). Understanding Bank-SMEs Relationship:The Influence of Adaptation and Customer Fairness on Customer Satisfaction. Thesis.

Ferri Kuswantoro, M.Mohd Rosli, and Radiah Abdul Kader. (2012). Innovation in Distribution Channel, Cost Efficiency, and Firm Performance: In the case of Indonesian Small and Medium Enterprise scales.*International Journal of Business, Humanities, and Technology,* 2(4), 102-111.

Ferri Kuswantoro, M.Mohd Rosli and Radiah Abdul Kader. (2012). The Impacts of Innovation in Distribution Channel & Effectiveness on Indonesian Small and Medium Enterprise scales' Performance. *International Business and Management*. 5(1), 2012.

George,D and Mallory, P.(1995). SPSS/PC+Step by step : A Simple Guide and Reference . Belmont, CA : Wadswroth.

Hans Degryse, Nancy Masschelein, dan Janet Mitchell.(2005).SMEs and Bank Lending Relationships:the Impact of Mergers. Seminar at the Universities of Frankfurt, HEC-Paris, Maastricht, and Tilburg, the CESifo Applied Micro workshop.

Haber, S., and Reichel, A. (2005). Identifying performance measures of small ventures : The case of the tourism industry. *Journal of Small Business Management*, 43(3), 257–286.

Kim, Gimun; Shin, Bongsik; Kim, Kyung Kyu; and Lee, Ho Geun. (2011). IT Capabilities, Process-Oriented Dynamic Capabilities, and Firm Financial Performance, *Journal of the Association for Information Systems*, 1(7).

Kongmanilaa, Xayphone and Takahashi Yoshi.(2009).Innovation, Export Performance and P rofitability of Lao Garment Exporters. *International Journal of Economics and Management*, 3(2), 225 – 236.

Lancioni, Michael F. Smith and Terence A. Oliva (2000). The Role of the Internet in Supply Chain Management. *Industrial Marketing Management,* 29, 45–56.

Maria and Fern´andez.(2006). The role of information technology in corporate strategy of small and medium enterprises.*Journal International Entrepreneur*,3,251-262.

Manginsela, A. (2005). The role of Indonesian Polytechnic on SMEs Development: Between Efforts and Challenges-Paper presented on the International Conference on Facilities and Financing of Entrepreneurship

Medlin,Christopher John.(2003).Relationship Performance: a Relationship Level Construct. Competitive Paper – IMP.

Morgan, Neil A., Anna Kaleka, and Constantine S. Katsikeas. (2004), Antecedents of Export Venture Performance: A Theoretical Model and Empirical Assessment, *Journal of Marketing*, 68, 90–108.

Mudrajad Kuncoro and Irwan Adimaschandra Supomo. (2003). Analisis Formasi Keterkaitan Pola Kluster Dan Orientasi Pasar. *Jurnal Empirika,* 6(1).

Mukhamad Najib and Akira Kiminami.(2011). Innovation, cooperation and business performance. *Journal of Agribusiness in Developing and Emerging Economies,*1(1), 75-96.

Murphy, G. B., Trailer, J. W., and Hill, R. C. (1996). Measuring performance in entrepreneurship research. *Journal of Business Research*, 36(1), 15–23.

Musara Mazanai and Olawale Fatoki (2012). Access to Finance in the SME Sector: A South African Perspective. *Asian Journal of Business Management,* 4(1), 58-67.

Nada R, S. (2008). Pattern of information technology use: The impact on buyer–suppler coordination and performance. *Journal of Operations Management,* 26(3), 349-367.

Nagai, K. (2007). Small and Medium Enterprise Development Policies. Field Survey.

Olawale Olufunso Fatoki. (2011). The Impact of Human, Social and Financial Capital on the Performance of Small and Medium-Sized Enterprises (SMEs) in South Africa*. J Soc Sci*, 29(3),193-204.

Pallant, J. (2005). SPSS Survival Manual, 2nd, edition. Chicago : Open University Press.
Penrose E T (1959), *The Theory of the Growth of the Firm*, John Willey, New York.

Rosli. M.M, Ferri Kuswantoro, and Ahmad Raflis Che Omar.(2012). Competitive Strategies and Firm Performance : A Comparative Study of Malaysian and Indonesian Small and Medium Enterprises. 3rd*International Conference on Business and Economic Research(3rd ICBER 2012)*, 460-474.

Siddhartha S Brahma and Haimanti Chakraborty. (2011). From Industry to Firm Resources: Resource-Based View of Competitive Advantage.*The IUP Journal of Business Strategy,* 8(2).

Singgih Santoso.(2002).Analisis SEM menggunakan AMOS.PT Elex Media Komputindo. Kompas Gramedia.

Tambunan Tulus.T.H.(2000). Development of Small-Scale Industries during the new order Government in Indonesia. Ashgate-Aidershot-Brookfield USA-Singapure-Sidney.

Tambunan Tulus.T.H.(2009). Institute: Center for Industry, SME and Business Competition. facilitating small and medium enterprises in international trade (export): the case of indonesia.

Taylor, M. M., and Andrew. (2006). Banking Relationships: Effects on Debt Terms for Small Spanish Firms.*Journal of Small Business and Enterprise Development,* 44(3), 315-333.

Tom O'Toole and Bill Donaldson.(2002). Relationship performance dimensions of buyer–supplier exchanges. *European Journal of Purchasing & Supply Management, 8*, 197-207.

Ural, T. (2009). The effects of relationship quality on export performance. *European Journal of Marketing*, 43(1/2), 139-168.

Wernerfelt B. (1984). A Resource-Based View of the Firm, *Strategic Management Journal,* 5(2), 171-180.

Yhee, J. B. N. a. S.-J. (2001). Small and Medium Enterprises in Korea: Achievements, Constraints and Policy Issue. The International Bank for Reconstruction and Development/The World Bank 1818 H Street, N.W. Washington, D.C. 20433, U.S.A.

Zhou, H. and W. C. Benton Jr (2007). Supply chain practice and information sharing. *Journal of Operations Management*, 25(6), 1348-1365.

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