



Competition Intensity, Uncertainty Environmental on the use of Information Technology and its Impact on Business Performance Small and Medium Enterprises

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ABSTRACT

In the business world, the information technology revolution led to tremendous changes in competition, production, marketing and human resource management. The use of information technology is a vital component of business performance (BP). By this study wanted to know of competition intensity (CI), uncertainty environment (UE) of business and the use of information technology and its impact on BP. The sample number in this study are 130 responses of small and medium enterprises (SMEs) printing management in East Java, using purposive sampling technique. Through testing with analysis of structural equation modeling the results of this study found that: First, CI impact significant positive on the information technology investment (IIT). But CI impact significant negative BP SMEs. Second, UE of business impact significant positive on the BP of SMEs and IIT. Third, IIT impact significant positive on the BP of SMEs.

Keywords: Information Technology, Competition Intensity, Uncertainty Environment of Business, Business Performance, Small and Medium Enterprises

JEL Classification: L25

1. INTRODUCTION

Today's information technology revolution has swept all fields of human activity in this world. In the business world in particular, the information technology revolution caused tremendous changes in competition, production, marketing and human resource management. The nature of the sharp competition would be a serious problem for the company, this happens because the business environment has undergone a change marked by growing uncertainty of business environment and the intensity of competition increasing. One of the tools used by management to help face to face conditions of uncertainty environment (UE) of business and competition increased business today is investment information technology to help companies improve the efficiency, effectiveness, and innovation, so that they can compete with the larger company (Grover and Goslar, 1993).

Research Aida and Gudono (2001) concluded that in a company that contained a high degree of UE of business, it can be a positive effect on the use of information technology. Syam and Maryasih

(2006) in the study stated that the use of information technology is indispensable managers in addressing the uncertainty of the environment so that information managers can take the right decision and the effect on its performance. Research (Mia and Clarke, 1999; Chong et al., 2001) states that the competition intensity (CI) market can influence the relationship between the use of information technology.

While related to business performance (BP) results of research Al-Mawali et al. (2012) showed that the level of use of information technology impact on organizational performance. The use of information technology leads to better organizational performance. Dehning et al. (2005) reported the use of information technology has become a fertile land and the opportunity to gain a competitive advantage. Research Yao et al. (2009) studied the impact of the use of information technology in the company's performance; results of studies have found a positive association between the use of information technology and performance. Bromwich (1990) argues that information on the use of information technology to help companies face the challenges of a competitive market that

focuses on increasing the added value of the company to exceed its competitors. Correspondence between the uses of information technology to the needs of decision-makers will increase the quality of the decisions to be taken and will improve the unit of BP ultimately. Research Zehir et al. (2010) the results of its research findings indicate that the use of information technology is a vital component of the company's performance. Management of the use of information technology will be able to improve company performance.

Results of some studies are still few studies linking environment uncertainties and intensity of business competition on the performance of the business and the factors that influence the use of information technology, especially small businesses and medium enterprises (SMEs) printing in East Java. Therefore in this study wanted to know and analyze the effect of UE of business and intensity of business competition on the use of information technology and its impact on BP of SMEs printing in East Java.

2. REVIEW OF LITERATURE

2.1. BP

BP is defined by Mia and Clarke (1999) as how high the level of achievement of the targets that have been planned, such as the achievement of production, cost, quality, delivery schedule, service/services, sales volume, market share and profit levels. While the Purnama (2014) defines the performance of the business as the success of efforts to achieve the goal, which is obtained from a successful entrepreneur who has a brain that is intelligent, creative, proactive keep up with technology and can apply and be seen from the efforts of entrepreneurs when their businesses better than the previous period and illustrates better than any other business that is equal and similar, can be seen from the efficiency of production processes include technical efficiency and economic efficiency, the views of the target company include capital, scale of operations and business expansion, the views of its financial performance include profitability, liquidity and solvency and imagery company. According Algifari (2003, p. 118) business success can be seen from the efficiency of production processes that are grouped based on technical efficiency and economic efficiency. For further various aspects of determining the success of the business results of this identification in use as a reference instrument making research and variable indicator of business success is in use in this study include production efficiency, expanding production, profitability and public trust.

2.2. Investment Information Technology

Information technology is a set of tools that help you work with information and carry out tasks related to information processing (Haag and Keen, 1996). Information technology is any form of technology applied to process and transmit information in electronic form Lucas (2000). Information technology is a technology that combines computing (computers) with high-speed communication lines that carry data, voice, and video (William and Sawyer, 2007).

From some sense it can be concluded that information technology is a technology used for data processing, including processing, obtain, compile, store, manipulate data in various ways to produce

quality information, i.e., information that is relevant, accurate and timely, which is used for personal, business, and government and is a strategic information for decision making. For further various aspects of determining the level of use of information technology is in use as a reference instrument making research using instruments developed by Kim and Jee (2007) include investment in hardware, software and investment in investment in the network.

2.3. UE of Business

Successful organizations will always adapt to changes in their environment and proactively changing environment. Deasy and Muindro (2007) define UE as flavor individual's inability to predict anything accurately. It can affect the success and failure of making decisions. Basically, the uncertainty of the external environment is a condition that may affect the company's operations (Sham and Francine, 2006).

From the definition above can be concluded that the uncertainty of the environment is a condition that is beyond the control of someone who has not been established precisely to influence the course of the company's operations. For further various aspects of environment determinants of uncertainty that is in use as a reference instrument making research using instruments developed by Kim and Jee (2007) includes a variety of factors outside the company that could represent an opportunity or a threat for the company. Important environment factors consist of changes in consumers, changes in technology and changes in competitors.

2.4. CI

CI is defined as the market factors that affect the level of competition is measured from the number of similar companies within same industry, competition of products in the market, the resulting change of market share from competition, the level of price manipulation, an agreement contract between customers and competitors, changes in regulations and government policies, the intensity of price competition, the intensity of competition products (differentiation), the promotion of products and distribution channels (Chong et al., 2001; Subroto, 2015). For further various aspects of determining the level of intensity of competition in these markets is used as a reference instrument making research using instruments developed by Research (Mia and Clarke, 1999; Chong et al., 2001; Subroto, 2013) includes the number of similar companies within same industry, competition of products in the market, and the resulting change of market share from competition.

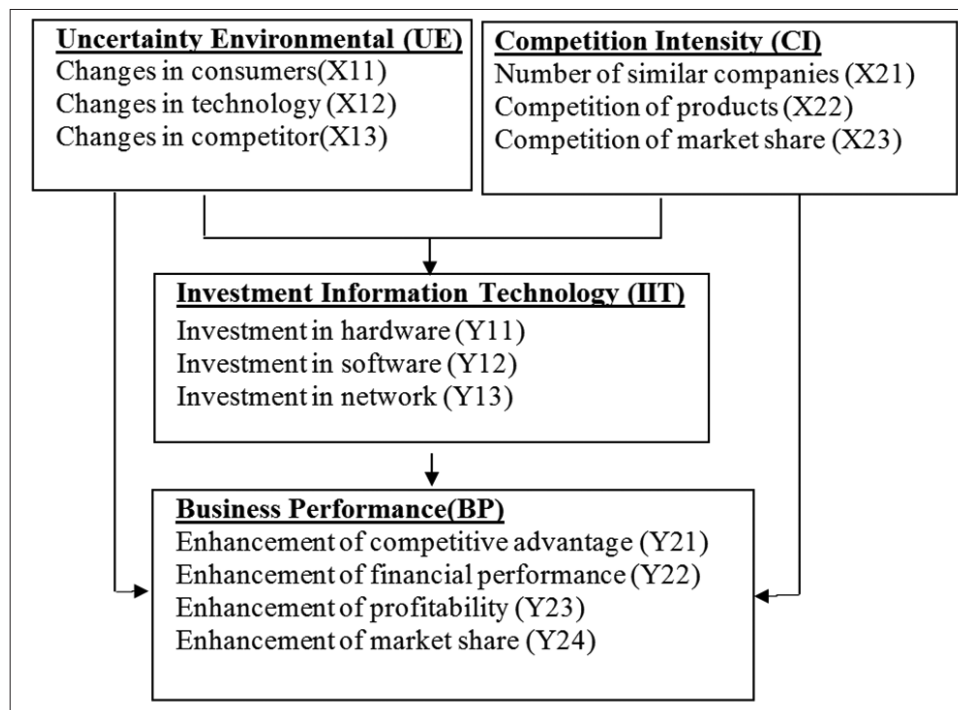
3. CONCEPTUAL FRAMEWORK

Conceptual framework of the study is intended to illustrate how the relationship between the study variables based on theory and previous studies experts. Conceptual framework models the relationship between the variables in this fieldwork can be presented in Figure 1.

4. RESEARCH METHODS

In accordance with its objectives, this study was designed as an explanatory study. The result obtained in this study is expected to

Figure 1: Conceptual framework model research



provide an explanation of how information technology investment (IIT) and BP is influenced by UE of business and market CI. The number of samples in this study 130 responses of SMEs printing management in East Java Indonesia. In this study, the samples used were 26 divisions of printing in East Java, with details of the division of regions as follows:

- Region I: Domiciled in Madiun, Magetan, Ngawi, Ponorogo, Trenggalek, Tulungagung, Pacitan, Blitar and Nganjuk.
- Region II: Located in Mojokerto, Jombang, Kediri, Tuban, Lamongan and Bojonegoro.
- Region III: Domiciled in Malang, Batu, Pasuruan, Probolinggo, Jember, Bondowoso and Banyuwangi.
- Region IV: Domiciled in Surabaya, Sidoarjo, Gresik, Bangkalan, Sampang, Pamekasan and Sumenep.

From those four regions is chosen the potencial town to improve SMEs as this following Table 1.

Each printing division, taken 5 persons as responses. The 5 persons for each printing division consists of the following elements:

1. Director
2. Financial administration
3. Human resource administration
4. Setting designer
5. Marketing.

So that the total number of samples in this study were 130 responses as explain by this following Table 2.

Data analysis using equation model of structural equation modeling (SEM). SEM can be used to test the effects of direct and indirect causality. In addition, SEM can also be used to measure

Table 1: Four regions is chosen the potencial town to improve

Region	Potencial town
Region I	Madiun
Region II	Mojokerto
Region III	Malang
Region IV	Surabaya

Table 2: Number of samples

Town	Printing population	Sample	Response	Total response
Madiun	18	4	5	20
Mojokerto	12	3		15
Malang	18	4		20
Surabaya	58	15		75
Total	106	26	-	130

gauge the fit of the model (Little et al., 2007). Then the model of analysis in this study are as follows (Figure 2).

5. RESULTS

5.1. Test Results SEM Analysis Model SEM

The conceptual model of test results can be seen in Figure 3.

The final test results can be seen in Figure 4.

In this study, the criteria used as a basis to determine the best model is the fulfillment of the coefficient of P-Value, GFI, AGFI, TLI, CFI and the fulfillment of the Chi-square (X2 with degrees of freedom (df) the smallest (Ferdinand, 2000). Compliance A detailed model of harmony can be seen in Table 3.

Figure 2: Model analysis in the research

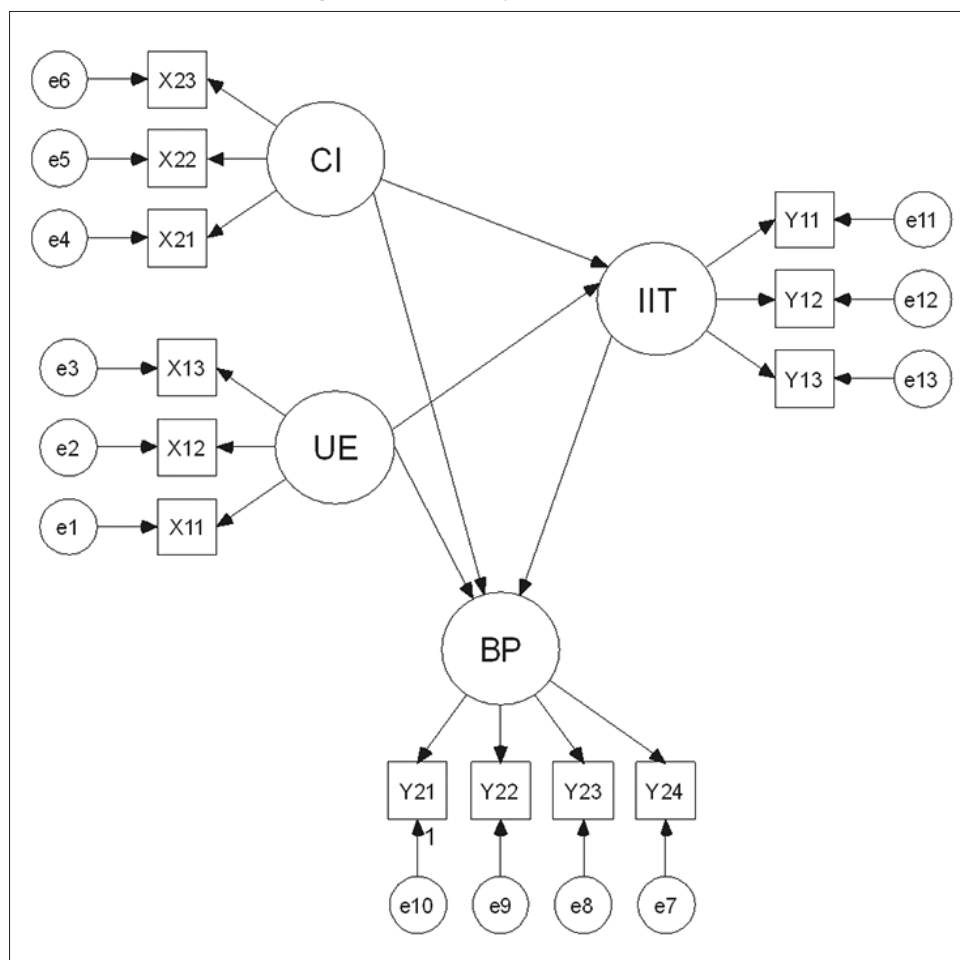


Table 3: Test results goodness of fit index

Goodness of fit index	Criteria	Coefficient
Chi-square	Small	36.452 goodness of fit index
Significant probability	≥0.05	0.785 goodness of fit
CMIN/DF	≤2.00	0.828 goodness of fit
GFI	≥0.90	0.969 goodness of fit
AGFI	≥0.90	0.945 goodness of fit
TLI	≥0.95	1.033 goodness of fit
CFI	≥0.95	1.000 goodness of fit
RMSEA	≤0.08	0.000 goodness of fit

5.2. Regression Weight (Confirmatory Factor Loading) and Critical Ratio (CR)

In this study used factor analysis and regression model with SEM. Based on the results of testing the model, and then obtained confirmatory factor loading and CR as follows.

The test results are presented in Table 4 show that if seen from the loading factor value, that twelve indicators above are 0.4 by Ferdinand (2000) the required value of loading factor in the analysis model is bigger than 0.4, then Ferdinand said for the CR required >1.96 at the level of $\alpha = 0.05$ and if seen from Table 1 shows that the value of its CR twelfth significant indicators with CR values: 1.96 and the value of the probability (P) of 0, 00 is >0.05. From the above test results obtained that the twelfth indicators can be used as a measure in explaining the variables together.

UE variables UE, are: Changes in Consumers (X11), Changes in technology (X12) and Changes in competitor (X13). All three indicators are jointly able to explain the variable. And from the three indicators which most able to explain the variable is changes in consumers, then changes in technology and the end is changes in competitor.

For variables CI, are: Number of similar companies (X21), competition of products (X22) and competition of market share (X23). All three indicators are jointly able to explain the variable. And of from the three indicators which most able to explain the variable is the number of similar companies, and then the competition of products and the latest is the competition of market share.

For variables IIT, are: Investment in hardware (Y11), Investment in software (Y12) and Investment in network (Y13). From the three indicators are only two indicators which are able to explain the variable together. And from both indicators which most able to explain the variable is Investment in network and the latest is Investment in hardware.

For variables BP, are: Enhancement of competitive advantage (Y21), enhancement of financial performance (Y22), enhancement of profitability (Y23) and enhancement of market share (Y24). Fourth indicators are jointly able to explain the variable and

Figure 3: Test results the conceptual models

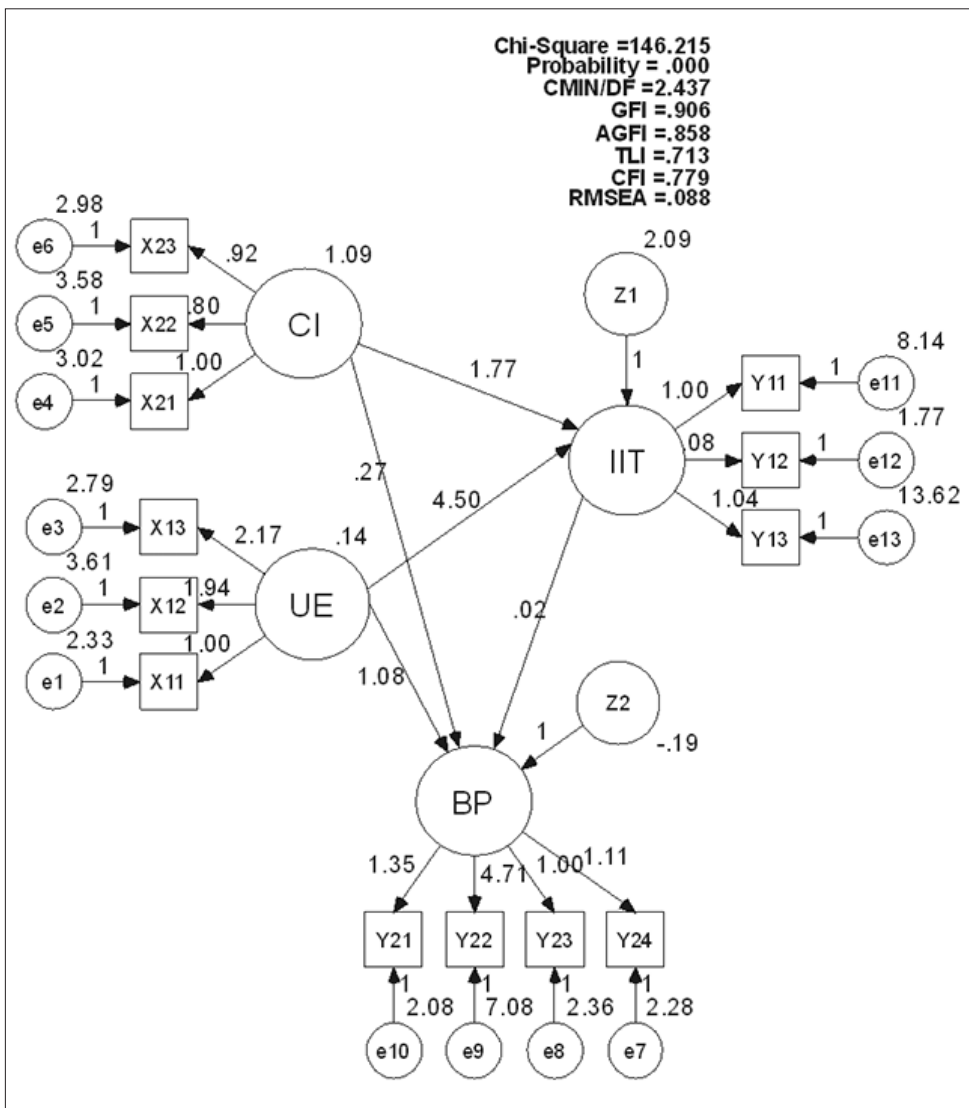


Table 4: Regression test result weight (loading factor confirmatory) and critical ratio uncertainty environment of business ratio models, competition intensity, information technology investment and information technology investment

Indicators	Estimate	Standardized estimate (loading factor) good of fit>0.4	Critical ratio good of fit>1.96	Probability (P) good of fit<0.05	Specification
X11←Uncertainty environment of business	1.000				Good of fit
X12←Uncertainty environment of business	1.636	0.552	2.963	0.003	Good of fit
X13←Uncertainty environment of business	1.828	0.556	3.288	0.001	Good of fit
X21←Competition intensity	1.000				Good of fit
X22←Competition intensity	0.880	0.419	3.023	0.000	Good of fit
X23←Competition intensity	0.822	0.401	3.090	0.000	Good of fit
Y11←Investment information technology	1.000				Good of fit
Y13←Investment information technology	1.024	0.432	3.006	0.000	Good of fit
Y21←Business performance	1.539	0.521	2.955	0.003	Good of fit
Y22←Business performance	5.519	1.824	3.026	0.002	Good of fit
Y23←Business performance	1.000				Good of fit
Y24←Business performance	1.659	0.553	3.003	0.003	Good of fit

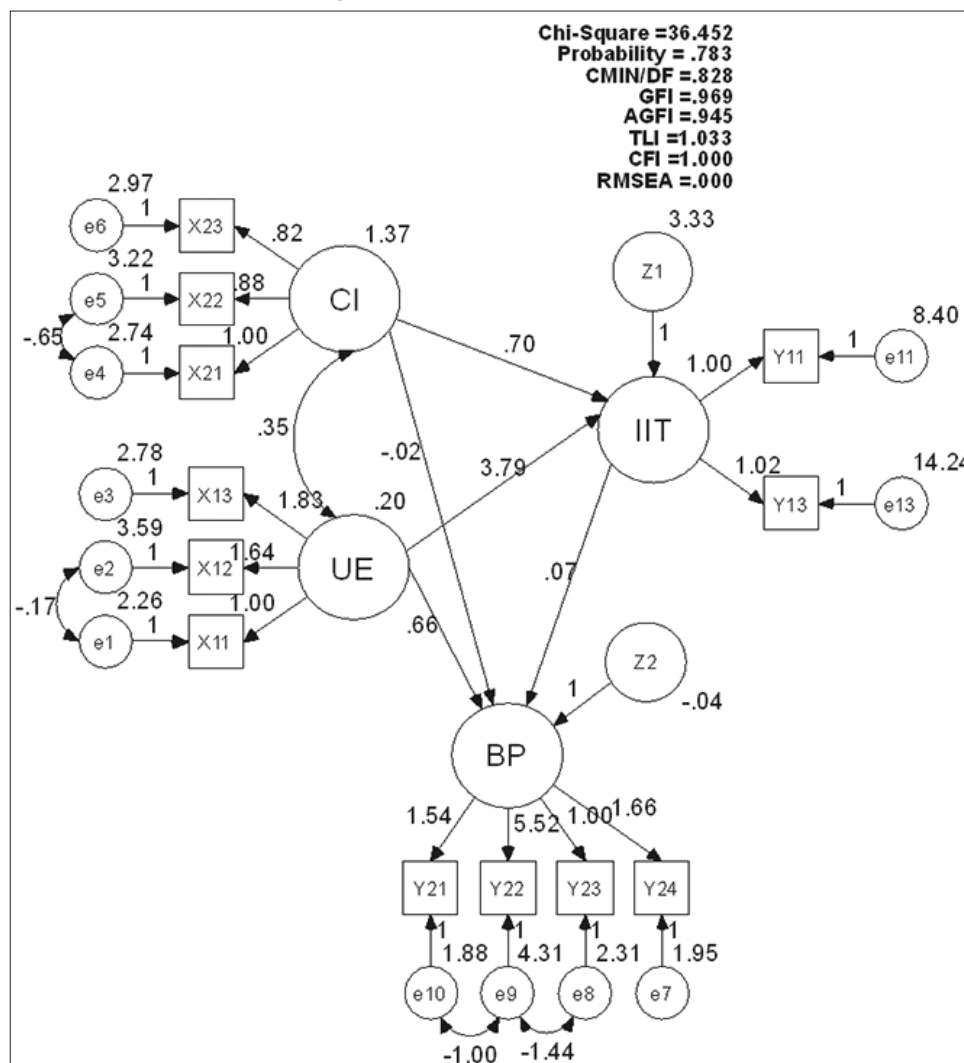
from these four indicators are most able to explain the variable is the enhancement of financial performance, then enhancement of market share and the latest is the enhancement of profitability. It can be seen from the estimate and loading factor of each of these indicators as shown in Table 4.

5.3. Results of Testing Path Coefficient

Results of testing path coefficient as presented in Table 5.

Based on the final stage of an alternative model, the structural equations obtained are as follows.

Figure 4: Test results the final model



Based on Table 6, states that: First, the magnitude of the influence of variables IIT, CI and UE of business on BP, regression coefficient for IIT amounted to 0.073 states that each additional score or the value of IIT will give rise to BP at 0.073. While the regression coefficient for CI amounted to - 0.018 states that each additional scores or grades CI will give a reduction from the BP of 0.018. While the regression coefficient for UE of business amounting to 0.655 states that each additional score or value Uncertainty of business environment will provide enhanced BP at 0.655. When viewed from the three variables, variable UE of business the greatest effect on BP for 0655 is the second order is the IIT with a coefficient of 0.073 was a negative effect of CI 0.018. Second, the magnitude of the influence of variables Uncertainty CI and business environment of the IIT regression coefficient for CI of 0.700 expressed that any addition of the scores or grades CI will give rise to the IIT amounted to 0.700. While the regression coefficient for UE of business amounting to 3.788 states that each additional score or value UE of business will provide increased for IIT amounted to 3.788. When viewed from the second variable, variable UE of business the greatest effect on IIT amounted to 3.788 s sequence is CI with a coefficient of 0.700.

Table 5: Results of testing effects uncertainty environment of business and competition intensity to information technology investment and the business performance of small industrial business

Variable	Path coefficient
Information technology investment←competition intensity	0.700
Information technology investment←uncertainty environment of business	3.788
Business performance←uncertainty environment of business	0.655
Business performance←competition intensity	-0.018
Business performance←information technology investment	0.073

Table 6: The final model structural equation modeling

Structural equation
 Business performance=0.073 information technology investment - 0.018 competition Intensity+0.655 uncertainty environment of business
 Information technology investment=0.700 competition intensity+3.788 uncertainty environment of business

6. DISCUSSION OF RESULTS

6.1. Effect of CI of the Investment Information Technology and BP

Through the analysis of SEM found that IIT and BP of SMEs printing in East Java was influenced by the intensity of competition. From the above test results obtained that the indicator is used as a measure of the intensity of competition in explaining variables, namely: Similar number of companies, competition of products. Competition of market share. All three indicators are jointly able to explain the variable. From the three indicators which most able to explain the variable is the number of similar companies, and then the competition of products and the latest is the competition of market share.

It can be concluded that the test results with the analysis of SEM through AMOS 4.0 show that CI significant positive impact on the IIT but CI significant negative impact BP of SMEs printing in East Java.

These findings show that the results are in line with what is expressed Chong et al. (2001) which states that the market CI external factors can affect the use of information technology. This is because the market competition has created upheaval, the pressure, the risks and uncertainties the company. Companies are required to answer all the threats and opportunities in a competitive environment by designing the appropriate use of information systems to achieve the goal. The survival of a business is largely determined by the success of the management in running the company's plans and objectives. For that every manager is required to contribute the best for the company in improving the effectiveness and efficiency of the company, so the company can survive in the competitive business. Achievement of optimal enterprise performance will not be released by the control system design effective and efficient management. Information technology is an important information tool needed every management company in an effort to control their business activities.

The results of this study are also consistent with research Mia and Clarke (1999) stated that the investment information technology can help companies to implement their plans in response to competitive business environment. Investment information technology will help the company face the challenges of a competitive market that focuses match the increase in value-added companies that exceed competitors. Correspondence between IITs with the needs of decision makers will improve the quality of decisions to be taken and ultimately improve BP. Besides investment information technology can also be used as an attempt to tackle the intensity of market competition includes the number of similar companies, competition of products. Competition of market share Subroto says (2015) this shows that IIT has a very important role in assisting management in making planning and business decisions accurately in addressing the intensity of market competition. On the other hand the results of this research market CI direct negative effect on BP of SMEs printing in East Java. Similar changes number of companies, competition of products and competition of market share and BP can reduce SMEs printing in East Java which includes efficiency of production, expansion

of production, profitability and public trust. Reduced BP because a lot of the costs incurred to face market CI.

6.2. Effect of UE of Business on IIT and BP

Through the analysis of SEM found that, IIT and BP of SMEs printing in East Java are influenced by UE of business, from the test results above obtained that these three indicators can be used as a gauge in explaining uncertain environment variables, namely: Changes in consumers, changes in technology and changes in competitors. All three indicators are jointly able to explain the variable and of the three indicators are most able to explain the variable is changes in consumers, then changes in technology and the end is the changes in competitor.

It can be concluded that the test results with the analysis of SEM through AMOS 4.0 shows that UE of business significant positive impact on the investment performance of business information technology and SMEs printing in East Java.

The results are consistent with research conducted Syam and Maryasih (2006) in his study suggest that the use of information technology is indispensable managers in addressing the uncertainty of the environment so that information managers can take the right decision and the effect on its performance. In the long term, the corporate environment is always changing. Only organizations that can adapt to the environment that will be able to remain operational in the long term. In an unstable environment and control the planning process will be more difficult and a lot of trouble, because of events in the future is difficult to predict. Therefore, UE of business faced by a manager will affect the use of information technology needs. Successful organizations will always adapt to changes in their environment changes and proactively changing environment.

Environment changes cause their influence on the use of information technology. Automation, computerization, manufacturing technology, and intense competition demanding increased investment in information technology in order to have more ability to produce information, especially to deal with the uncertainty resulting from the changes. In a state of high uncertainty, the necessary information with a broad scope and timely information delivery. On the contrary, if the state of the low UE of business, providing information with comprehensive coverage will tend to be useless. Investment in information technology have four characteristics, which those characteristics are important information that can assist management in controlling activities as well as the unpredictability of the environment in order to achieve the company's goals which in turn can improve the performance of companies (both financial and non-financial). Mardiyah and Gudono (2001. p. 7) states there are four characteristics that must be met by a management information system to produce useful information, namely: Broad scope, aggregation, integration, and timeliness.

Characteristics of Broad Scope are a characteristic that the information has a broad scope, in which the extensive information it contains dimensional focus, time horizon, and quantification. With the information that has a broad scope, managers can

determine UE of business that often arises outside the company caused by changes erratic and financial and non-financial information in the future also affects the decision making of managers to achieve the company's goals. Characteristics Aggregation is a characteristic that results in the aggregation of information is that information that is not overloaded (as needed), but provides quick information corresponding functional areas, time periods, or through the decision model. Aggregation of information required in the company as this information will help managers to prevent the possibility of information overload. With the aggregation of information, managers can make decisions in accordance with the environment conditions of companies who often experience uncertainty. Characteristics integration will be successfully met if the information between units within the company can support each other. Characteristics of integration will be the integration of the information that is information that reflects coordination between segments one segment to another. The information generated by the characteristics of integration, includes the specification of the target segment that shows the effect of the interaction and information on the effect of the decision on the operation of the entire sub-unit of the organization. Integration of information useful for managers when they are faced to make decisions due to the uncertainty of the environment arising in one sub-unit that may impact other sub-units. Timeliness characteristics are characteristics that generate the information available when they are needed and often systematically reported. Timely information will also support the manager quickly in response to any problems that exist and to face the UE of business of business. In addition, timely information also means the end of the reported events and to provide rapid feedback on decisions that have been made. Timeliness of information include the reporting frequency of how often the information is provided to the manager and the speed of reporting the grace which supports the manager to face the UE of business.

With the fourth of these characteristics, it is expected that managers can make better decisions to deal with UE of business that often arise in a business environment that could improve BP ultimately.

6.3. Effect of IT Investment on BP

Through the analysis of SEM found that, BP of SMEs printing in East Java that include indicators of production efficiency, the expansion of production, profitability and public confidence is influenced by IIT. From the test results above found that two of the three indicators that can be used as a measure in explaining the variable IIT, namely: Investment in hardware and investment in the network. From the two indicators which most able to explain the variable is the investment in the network and then investment in hardware.

It can be concluded that the test results with the analysis of SEM through AMOS 4.0 indicates that the investment information technology a significant positive impact on the BP of SMEs printing in East Java.

Findings from this study are consistent with study Al-Mawali et al. (2012) showed that the use of information technology can improve organizational performance better. This is supported Dehning et al.

(2005) suggested the use of information technology has become a fertile land and the opportunity to gain a competitive advantage. Investment information technology in the form of investment in software and investment in networks for small businesses provide cost effective, new product introduction, improve communication, collect information and find potential business partner but it can expand the market with a lower cost and easier, reducing transaction costs and coordination and to develop and create new markets. Investment information technology also constitutes the strategic step for the company to upgrades the speed and accuracy of information, customer services, business process improvement and the improvement of human resources. For the Investment indispensable information technology managers in dealing with UE of business and the intensity of competition on the market so that information managers can take the right decision and influence on managerial performance as stated in the research Zehir et al. (2010) the results of its research findings indicate that the use of information technology is a vital component of the company's performance. The successful management of the use of information technology will be able to improve company performance. But because of the limitations of its resources, application of IIT in SMEs to be different from large enterprises Ale et al. (2010). The limited resources in terms of human resources, financial resources and resource tools that for SMEs the spread of IIT is not a simple process. As Akkeren and Cavaye (1999) that SMEs to first identify the factors that affect the application of IIT. The spread of IIT also requires a commitment of the company is not only limited to study and understand the business process changes but also his willingness to invest in technology (Hargo and Dodgson, 2001).

The results of this study are also consistent with research Yao et al. (2009) who studied the impact of the use of information technology in the company's performance, the results of his research has found a positive association between the use of information technology and performance.

7. CONCLUSION

Based on the results of research and discussion that has been done above, it can be summed up as follows:

1. Competition is seen from the intensity (number of similar companies, competition of products and competition of market share) positive impact on the significant investment that includes information technology (investment in hardware and investment in the network). And CI significant negative impact BP SMEs. CI is a market that external factors can affect the use of information technology. This is because the market competition has created upheaval, the pressure, the risks and uncertainties the company. Companies are required to answer all the threats and opportunities in a competitive environment by designing the appropriate use of information systems to achieve the goal. CI significant negative impact BP SMEs because many of the costs incurred for the challenges of a competitive market that is focused on increasing the added value of the company to exceed its competitors in terms of improving IIT.
2. UE of business is seen from (changes in consumers, changes in technology and changes in competitors) significant positive

impact on the IIT and BP of SMEs. In the face of an unstable environment and cope with UE of business, investment information technology is needed by managers, so from that information they can take the right decision and influence the BP.

3. IIT is a significant positive impact on the BP of SMEs. With the IIT in a company, managers can take appropriate decisions to face market CI and UE of business. Making the right decision, can influence a success of BP both now and in the future.

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