IT VALUE ANALYSIS : THE CASE STUDY OF PT. BANK TABUNGAN NEGARA, TBk

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Abstract

Information Technology (IT) has significantly influenced the operations and strategies of most organizations and industries now days. Computer, telecommunications and computer based information systems have been taking a major part of business process to increase competitive advantage as a Resource Based View theory purposes. To confirm this theory, a case study is performed for PT. Bank Tabungan Negara, Tbk., one of the largest bank in Indonesia engaged primarily in housing finance. Researched data refer to Bank Tabungan Negara Annual report published between 2011, 2012 and 2013. The study focuses on data that have relationship between IT expenditure and business performance. Result shows that IT spending gave a significant positive result. Bank Tabungan Negara IT resources analyzed in term of IT capability, IT competence and competitive advantage that lead to be the IT value model. In conclusion, the case study resulting that IT value positively affected Bank Tabungan Negara business performance.

Keywords: Bank Tabungan Negara, resourced based view, IT value, business performance, IT resources, IT capability, competitive advantage.

Introduction

The study case for this research is PT. Bank Tabungan Negara, Tbk (BTN). BTN is one of the largest bank in Indonesia focuses mainly is to provide housing loan or mortgage service for Indonesian society since 1976 beside the other banking operations so that in 2011 BTN became a leading bank in mortgage domination in Indonesia and able to maintain 10 largest bank in Indonesia in terms of total assets and lending. In 2009 BTN as state enterprise was recorded in Indonesia Stock Market Exchange, in 2012 Indonesia government has 71.84% of shareholders and Government of Singapore Investment Corporation or GIC has 5.11%.

Business sector of BTN divided into three Mortgage sector or Kredit Perumahan Rakyat(KPR) and consumer loan. Consumer loan divided into four segments: subsidized

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Mortgage, Non Subsidized Mortgage and other mortgage and consumer loan. Deposit product also consist of three types, namely: Demand deposits (Giro), saving and time deposits.

1) Housing and Commercial Banking. Loan products consist of three types: Construction loan, Small Medium Enterprise, and other corporate loan. Deposit product consists of two types, demand deposits and time deposits.
2) Sharia Banking
   Financing products consist of Sharia Consumer Financing and Sharia Commercial Financing. Funding products consist of: Sharia Demand Deposits, Sharia Savings and Sharia Time Deposits

This paper will discuss about a role of information technology (IT) with regard to business performance on BTN as the case study conducted on BTN. In general, we have already know that utilization of IT in business process is able to increase business performance in terms of reducing costs, operational time savings and effectiveness in business process transaction.

Review of Literature

Resource Based View (RBV) is a theoretical foundation to build a framework for analysis IT value. Measuring IT value based on resources that firms have, according to Ray and Barney (2004) resources and capabilities are refer to tangible and intangible assets firms use to develop and implement their strategies. Business process are actions that firms engage in to accomplish some business purpose or objective.

According to Barney (1991) firm resources (tangible and intangible) that can create advantage must have the following attributes:

- Valuable: the resource can enable firms to conceive or implement strategies that improve it efficiency and effectiveness
- Rare: the resources should not be possessed by a large number of competing firms.
- Imperfectly imitable: the resources should not be easy imitated due to unique historical conditions, causally ambiguous or social complex.
- Non substitutable: the resources should not be easily replaced by another substitutes.

According to weill (1992) Mitra and Chayam(1996) Kar Yan (1998) Banker and Bardham et al (2006) not all resources can be considered to be resource in RBV theory, only IT investment, IS adoption and IT infrastructure are resources but other such as Byrd and David (2003) Ranganathan, Dhaliwal et al (2004) Bhatt and Grover (2005) suggest intangible resources such as management skills, staff training and knowledge management are also part of resource in RBV theory.

The major dependent variable in the RBV model is firm performance refer to Liang and You (2009). Three general indicator to measure firms performance: 1. Financial indicator include commonly used measures such as ROI, ROE, ROS, Revenue and Sale, this indicators usually can show the firms capabilities in making profit.

According to Cronk and Fitzgerald (1997) value resulting from investing IT can be seen as IT Business Value, and according Johan Neil (2004) assurance of IT business value requires IT Management, IT management is the management of: IT expenditure to ensure quality of assets. The appropriate use of such quality IT assets and the organizational impact resulting from the use of IT.

According to Sambamurthy and Zmud (1994) an organization achieves positives IT business value when one or more of the following statements are true:

- IT has been incorporated into new products or services – leading to a number of organizational performance outcomes such as: better financial performance (ROI, NPV).
- Business process has been redesigned using IT in such a away that the processes are more efficient or effective – leading to organizational outcomes such as: employee satisfaction, increase customer satisfaction, effective MIS (Management Information System) user satisfaction, and organizational growth and learning.
- IT has been enabled organizational decision makers to improve their understanding of resources, market and customers leading to better sourcing input, better product design, higher degree of integration between business and IT strategy, competitive advantage. Better fulfillment of Critical Success Factor (CSF), lowering project and organizational risk, aligning strategic architecture, lowering definitional uncertainty, aligning system infrastructure, lowering technical uncertainty.
- IT has enabled flexible and adaptable organizational structure among organizational members and with customers suppliers potentially leading to decreased lead time in product/ service development and or delivery, and increase market share.

Research Methodology

This case study intends to investigate and validate the RBV theory and model in terms of IT value related to Bank BTN business performance. To do the research firstly, Choosing BTN as a study object because financial firm or banking business will never escape from the needs of IT to enhance business performance and also relatively easy to search out the data. Collecting data refer to annual reports from 2011 to 2015. Selecting data refer to case study purpose from annual reports.

Result and Discussion

BTN IT VALUE

According to Cronk and Fitzgerald (1997) the four grouping or dimensions of IT business value can be described as follow[1]:

1) Organization dependent characteristics.
   This grouping refers to measures that relate value to factors such as IT investment objectives aligned with business objectives and the alike. In short "business strategy alignment".
2) System dependent characteristics
   This grouping refer to qualitative measures or "soft" value, e.g. User satisfaction, employee satisfaction, organizational growth, learning the alike. In short "soft" value.
3) Organizational impact.
   This grouping refer to measurable impacts to the organization in a quantitative way or financial impact, in short "financial value".
4) Contextual factors.
   This grouping refer to measure which link value to the organizational context, in short "contextual value"

The four grouping above about IT value of a firm can be simplified into to main parts namely, tangible and intangible resources. According Wade and Hulland (2004) tangible resources represented by IT Assets and intangible resources represented by IT capabilities[2]. Both tangible and intangible value of IT in a firm are also reflected on IT spending of a firm.

Data to analyze the relationship between information technology spending and business performance at Bank Tabungan Negara are based on BTN Annual Reports that publish regulary every year. The annual report that used to analyze the case study has been published for 3 years back from 2011 to 2013. All reports provided by BTN it self and can be downloaded from www.btn.co.id

TABLE I.

	Capital Expenditure per year (Rp billion)		
	2011	2012	2013
IT CAPEX	187.51	199.19	207.76
Total CAPEX	313589	405835	266623
% IT CAPEX	6%	5%	7.8%
% IT CAPEX Growth	-	-	4.3%

BTN's IT Capital Expenditure (annual report 2011-203)

As shown above, to develop a reliable IT infrastructure BTN allocate a portion of the company's income for IT. Bank BTN's capital expenditure for IT development in 2011 reached Rp187.51 billion, while the realization by the end of 2011 reached Rp75.37 billion. The request for softwares in 2011 is higher because the strategic initiatives are focusing on the increase of third party fund and quality of loans that must be supported by competent IT.

The capital expenditure in 2011 is used for the following things:

Strategic and innovative applications development:

- eLoan application: Loan Origination System(LOS)
- eCall application: Collection Recovery Management System (CRMS)
- iFlow Application: Document Management System
- iDss Application: Enterprise Data Warehouse (EDW)
- iBridge Application: Middleware.
- PSAK 50/50 application and supporting system.
- iCTQ Application: PMO.
- HRIS/HCIS Application.
- iCPress Application: VoIP (IP Telephony)
- iDentify: Single Sign on Application.

Infrastructure development:

- Provision of supporting devices for operational center based on the standard of data center room.
- Provision of total security solution phase II.

In 2012 total IT capital expenditure reached Rp199.19 billion while the realization by the end of 2012 reached Rp143.03 billion with details: hardware Rp67.02 billion, network Rp9.67 billion and software Rp66.34 billion. In 2012 demand for hardware development higher then years before due to the need for capacity planning.

Total IT expenditure in 2012 deployed to some of the following:

Infrastructure Development:

- Processor upgrade for conventional core banking.
- Network load balancer.
- Two factor authentication device (B2B).
- Storage Area Network xSeries.
- Switch SAN.
- Hardware for customer Application Due Diligence.
- Hardware for enhancement email corporate.
- Hardware for Mini Bank training system.

Developing innovative and strategic applications:

- iLoan consumer application enhancement
- Report Management enhancement.
- ATM services enhancement
- iHCIS application phase II
- Dashboard Balance Scoreboard application.
- DigiMap application.
- Card Fraud Prevention application.
- Indonesia Bank RTGS II application.
- Web Branch application.

In 2013, total IT capital expenditure reached Rp207.76 billion, increased 4.3% compare to the last year IT expenditure, while the realization in 2013 amounting to 30.41% smaller compare to the last year IT capital expenditure 2012 amounted to 62.75%.

In 2013 demand of developing hardware is preferred due to the need to keep *Zero Downtime* to ensure service availability for the needs of customers. On the other hand software development is focused on customers service oriented transactional speed and ease.

The capital expenditure in 2013 is used for the following things:

Infrastructure development:

- Internet Banking 2.0 (CMS) conventional BTN and Sharia
- Internet Banking Individual (B2C) and Mobile Banking.
- BTN Property

Strategic and innovative software development:

- Corebanking Sharia development.
- EDC development.
- BI RTGS phase II development.
- Sustainability of middleware.

IT INVESTMENT ON BUSINESS

In order to get more precisely result, Brynjolfsson and Hitt (1998) suggest that the value of IT should be determined by intangible measurements such as enhancement in quality, customer service and new product development. In addition to measure IT value creation we use one category for measuring[3] that is *Profitability* which is measured by return on investment (ROI), return on equity (ROE) and return on asset (ROA).

Table II

Business	Year

Performance	2011	2012	2013
ROE(%)	17.65	18.23	16.05
ROA(%)	2.03	1.94	1.79

IT and Business Performance (adopted from BTN annual reports 2011-2013)

ROE Is calculated as profit for the year attributable to owners of the parent company divided by total equity attributable to owner of the parent company at year ending December 31, while ROA is calculated as profit for the year attributable to owner of the parent company divided by total asset at year ending December 31 [3].

Table II shows that in 2011 and 2012 financial ratio ROA and ROE relatively stable but in 2013 both ROA and ROE are decreased from previous year, ROA 1.79% or decrease 0.15% and ROE 16.05% or decrease 2.21%.

Case study analysis of the context of RBV

According to Liang and You(2009), the basic argument of RBV is that firm performance is determined by the resources it owns. When RBV is applied to analyze the effect of IT, IT is considered an organizational resources that can enhance organizational capabilities and eventually lead to higher performance [4].

A. IT Resources

Bank BTN's IT infrastructure resources as explain above are intended for gain a vital competitive advantage by having a direct marketing and reliable customer service environment and new streamlined business process.

According to Wade and Hulland (2004) IT resources contain two categories: intangible and tangible IT assets and IT capabilities for example, hardware and software can be considered as IT assets serving as an input or output in a transformation process. In contrast, IT capabilities represent the transformation process which use IT assets e.g. managerial capabilities[5]. Bank BTN resources following Wade and Hulland theory can be approximately described as follow:

1) Tangible Resources. IT infrastructured such as IT infrastructure development, developing strategic and innovative application;
2) Intangible Resources. Bank BTN has a Human Caiptal in IT division to enhance staf skills and knowledge in order to catch up with the current progress. Various training and socialization for IT application routenly held for staff in order to ensure consistency of IT support for sustainable business process of Bank BTN.

B. IT Capabilities

According to Lukman and Suhardi the definition of IT capability is the ability to mobilize and deploy IT-based resources in combination or co-present with other resources and capabilities classified as follows [6]:

- IT infrastructure capability. It relates to the ability to share information

across various functions, innovate, and develop business opportunities, and the elasticity to react to changes in business strategy. As a result, IT infrastructure capabilities are the ability of the IT division to supply extensive firm-wide IT infrastructure services that serve the organization business process as the base foundation of other IT capabilities.

- Managerial IT skills. IT human capitals dedicate in technical and managerial IT skills. Managerial IT skills are often tacit by nature, dependent on other interpersonal relationships, which might take years to build up so they have a high inimitable, difficult to duplicate and substitute. In other words, it shows the ability of the IT division to formulate, develop, and make use of IT solutions to support and improve organizational business processes.
- Collaboration between IT and business, being composed of sharing risk and responsibility for IT application each other. This indicates the ability of the IT division to generate collaboration with business groups to work collectively to exploit new business prospects. In addition, both IT infrastructure capabilities and managerial IT skills will support the formation and consolidation of the collaborations between IT and business.

Bank BTN has Information Technology Steering Committee that has responsible for providing recommendation to the Board of Director in relation to:

- Information Technologies Strategic Plan (ITSP) which is in line with BTN business activity strategic plan.
- Compatibility of information technology project that have been approved with the ITSP.
- Sustainability between implemented information technology projects with the agreed project plan.
- Sustainability of information technology with the needs of management information system and the needs of business activity.
- Effectiveness of measures to minimize BTN investment risk in IT.
- Monitoring the performance of IT and its improvement efforts.
- Seeking settlement of various issues related to IT

C. IT Core Competences and Sustainable Competitve Advantage

According to Lukman and Suhardi information system flexibility is studied in its relationship as an enabler of core competencies that have been closely linked to sustained compatitve advantage in the management literature[7]. Bank BTN case study has IT core competence that makes compatitive advanatage to the firm. IT core competences resulting improvement in BTN core banking business process as follows:

- Third Party Fund Incensement. Bank BTN conducted research on Internet Banking (CMS) implementation, which is user centric banking service where customers can access banking services from anywhere as well as able to choose needed services.
- Loan Growth with Controlled NPL. Bank BTN conducted an enhancement for Consumer and Commercial's iLoan, as well as developed the features so that loan process and collection by debtor can get faster and more efficient.
- Business Process Efficiency. Other IT applications that were implemented in order to fasten the business process: (1)Development of saving products, (2)Development of Host to Host, (3)Development of ATM features, and (4)Voip, a communication system using VPN network, is applied to communication process in the Head Office and branches to make it more efficient in terms of cost.
- Continuous improvement of business intelligence in form of reports that can be access on EDW system.
- Ease to implemented changing in structure organization and also fasten human resources information delivery that can be access by head office and branch offices resulting more efficient time to analyze data pool talent.

Through Information Technology (IT), Bank BTN gains a vital competitive advantage by having a direct marketing and accountable customer service environment and new, streamlined business processes. Consistent management and decision support systems provide Bank BTN such a competitive edge to forge ahead in the banking industry.

Conclusion

This paper intended to proving the correlation between IT value and business performance. The case study for Bank BTN validated that IT value through IT infrastructures and IT governance has positive correlation with Bank BTN core business. This paper also provide analysis IT core competence and sustainable competitive related to enhanced business performance, IT tangible and intangible resources that made Bank BTN has a competitive advantage.

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