Productivity of Zakat Institutions in Indonesia: A Comparison

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Zakat institutions play an important role in managing zakat productively, with the aim that the funds collected can be distributed in an appropriate manner to achieve welfare and social justice. The purpose of this research is to analyze the productivity of zakat institutions in Indonesia using the Malmquist Productivity Index (MPI) method with the 2016-2020 research period. The research object used is 15 zakat institutions in Indonesia. The data from this study comes from the annual financial reports of each institution from the 2016-2020 period. The input variables used are total assets, operational costs, and employee costs. Meanwhile, the output variable used is the amount of collection and distribution of zakat. The results of the study show that in general, zakat institutions experience increased productivity over time. Zakat institutions originating from mass organizations have the highest average productivity compared to other organizations. If productivity is seen from year to year in each institution, the institution with optimal productivity in all years of observation is LAZ Al-Azhar.

Keywords: Zakat Institution; Productivity; MPI; Indonesia.

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INTRODUCTION

Zakat is an obligation for Muslims to give a portion of their wealth to certain beneficiaries (Mustahik), in accordance with specified terms and conditions, with the aim of achieving socio-economic welfare (Wahab & Rahman, 2012). Zakat assets can be managed by amil zakat either individuals or amil zakat institutions. According to Widiastuti & Rosyidi (2015) Amil Zakat Institution is an institution formed independently by the community which has the task of assisting the collection, distribution and utilization of zakat. Zakat management is very important to do considering that zakat has an important role not only in terms of religion but also economically and socially (Widiastuti et al., 2018), among the roles of zakat are to alleviate poverty, equalize income and distribution of wealth, with the aim of preventing concentration of wealth only to a handful of people, contributing to welfare and social justice as well as economic sustainability (Djaghballou et al., 2018; Al-Salih, 2020). Of the several important roles of zakat, the main program of zakat institutions is to reduce poverty and have an impact on empowering people who are not yet prosperous (Nurasyiah et al., 2019).

Poverty continues to be a problem on the national agenda in Indonesia, both for the government and Community Social Institutions (NGOs), although there have been many programs aimed at overcoming the problem of poverty, there have been no significant reduction efforts in Indonesia (Rusytiani & Rosyidi, 2018). Therefore, in accordance with the solutions offered by the economy, namely by redistributing income, zakat needs to be empowered and optimized to be able to overcome these problems. However, there are several challenges faced by zakat institutions to make this happen, including low public trust, lack of accountability (Ahmad, 2019), inadequate funding, lack of transparency, weak governance structures (Ab Rahman et al., 2012; Rusydiana & Firmansyah, 2017), the distribution of zakat is inefficient and the collection of zakat funds is still relatively low (Ahmad & Ma'in, 2014).

In Indonesia, based on the results of the 2019 BAZNAS Strategic Studies Center on Zakat Potential Mapping Indicators (IPPZ), the potential for national zakat in Indonesia as of 2019 was recorded at Rp. 233.8 trillion or equivalent to 1.72% of GDP in 2018 with a value of Rp. 13,588.8 trillion. Then in 2020, the research results from the BAZNAS Strategic Studies Center stated that the total potential for zakat in 2020 would reach IDR 327.6 trillion. However, the realization of ZIS from the official Zakat Management Organization in 2020 is only worth IDR 12.7 trillion or only 3.9% of its potential. This adds to the list of challenges that must be faced by zakat institutions. For this reason, zakat institutions need to implement an optimal governance system by measuring and maintaining the level of efficiency and effectiveness and productivity of the zakat institutions themselves (Wahab & Rahman, 2012).

The productivity of Zakat Institutions is an important factor in improving the performance and quality of their services (Haryadi et al., 2022). Implementation of a productive zakat program can increase growth, benefit, and develop small and medium enterprises, as well as improve the welfare of zakat recipients (Mawardi et al., 2023; Sutrisno & Haron, 2020). Therefore, it is important for zakat institutions to focus on increasing their productivity in order to reduce poverty and improve welfare and to be able to run their institution's operations properly. Productivity in zakat institutions is a measure of how efficiently and effectively resources are used to achieve the desired results. According to Kopelman (1986) productivity is the proportion of one or more physical outputs to the physical inputs used in production. In other words, total production (output) is affected by the amount of capital and labor invested.

There are several studies that have analyzed the productivity of zakat institutions, including Nurasyiah et al (2019) analyzing the efficiency and productivity of zakat institutions in Indonesia and Malaysia, and the results of his research found several zakat institutions that have optimal productivity and efficiency. Rusytiani & Rosyidi (2018) measure the efficiency and productivity of zakat institutions in Indonesia. Wahab & Rahman (2012) studied the growth of zakat productivity in Malaysia. The results of his research concluded that total factor productivity (TFP) increased slightly for all industries, mainly due to technical changes rather than efficiency changes. Further decomposition of the efficiency change into purely technical and scale efficiency components shows that pure efficiency is found to be a more important source of efficiency change than the scale efficiency component. Djaghballou et al (2018) measure the efficiency and productivity of zakat institutions in Algeria.

Along with the increasing role of zakat institutions which is also accompanied by various challenges that must be faced by zakat institutions, especially in zakat productivity, it is important to understand and measure productivity in zakat institutions in order to find solutions to existing

problems. Apart from that, the Islamic economy has also experienced rapid development from year to year, and people should be aware of the potential and role of zakat as one of Islamic philanthropy. Therefore, further research is needed regarding the productivity of zakat institutions in managing zakat funds, as well as filling in the gaps from previous research. The purpose of this study is to analyze the productivity of zakat institutions in Indonesia.

LITERATURE REVIEW

The term zakat in language means purification and growth, while terminologically it means part of assets that must be distributed by a Muslim for certain activities in a certain way at a certain time, as explained in the Al-Qur'an and As-Sunnah (Djaghballou et al. , 2018). The same thing was also explained by Wahab & Rahman (2012) that zakat as one of the orders in Islamic law, is an obligation for Muslims to distribute a portion of their assets to certain beneficiaries, in accordance with predetermined terms and conditions, to achieve socio-economic welfare. Furthermore, zakat management can be carried out by various parties, such as amil zakat institutions, national amil zakat bodies, or sharia microfinance institutions. However, generally the management of zakat is carried out by amil zakat institutions which are responsible for collecting, storing, managing and distributing zakat to mustahik (zakat recipients).

Zakat management institutions in Indonesia are divided into two, namely government institutions called the National Zakat Agency (BAZNAS) and private zakat institutions such as Rumah Zakat (RZ), Dompet Dhuafa, Sinergi Foundation, DT Peduli, PKPU, and other zakat institutions (Nurasyiah et al. al., 2019). The implementation of zakat management in Indonesia is contained in Law Number 23 of 2011 governing the planning, collection, distribution and utilization of zakat. Widiastuti & Rosyidi (2015) explain that the Amil Zakat Institution is an institution formed independently by the community which has the task of assisting the collection, distribution and utilization of zakat. Djaghballou et al., 2018 describes Zakat institutions as institutions that are responsible for managing zakat, have an important role in promoting economic activity and guaranteeing a minimum standard of living for Muslims.

In the context of Islamic economics, zakat plays an important role in reducing poverty levels, equalizing income and distribution of wealth (Djaghballou et al., 2018). In addition, the potential of zakat as an Islamic economic instrument can touch aggregate consumption, savings and investment, aggregate supply of labor and capital, and increase economic growth which in turn can become an alternative solution for poverty alleviation (Wahab & Rahman, 2011). Meanwhile, from the muamalah side, zakat has a function to ease the economic burden of mustahik and strengthen the ukhuwah between mustahik and muzaki. Furthermore, zakat can also be an instrument of balance between sectors in the national economy. This shows that zakat has the potential to overcome economic downturn and poverty in a country if managed properly (Rustyani & Rosyidi, 2018). Based on Law no. 23 of 2011 concerning the management of zakat, the purpose of zakat management in Indonesia is to increase the effectiveness and efficiency of services in the management of zakat, along with increasing the benefits of zakat in order to achieve social welfare and as an effort to alleviate poverty. Even though zakat institutions are non-profit organizations based on social humanity, zakat institutions need to uphold professionalism, transparency and accountability in their management.

Given the magnitude of the role and purpose of zakat, it is necessary for zakat institutions to maintain their productivity. According to Gaspersz in Nurasyiah et al. (2019) productivity is defined as the ratio of output to input. Productivity is also defined as a combination of effectiveness and efficiency. Effectiveness is related to the expected output according to the target, while efficiency is the minimum use of resources with maximum results, so that productivity can be formulated. Measuring the productivity of production factors means focusing on the output or income of an industry that results in profits or cost factors (Caves et al., 1982). By increasing productivity, a business or organization can produce more output with the same resources or produce the same output with fewer resources. Furthermore, there are several factors that can affect the productivity of zakat institutions, including the strategy of collecting and distributing zakat funds, quality of management of zakat funds, quality of programs and social activities funded by zakat funds, as well as transparency and accountability of zakat institutions in managing zakat funds.

There are several studies that examine the productivity of zakat institutions including Wahab & Rahman (2012) explaining the productivity growth of zakat institutions in Malaysia. The results show that total factor productivity (TFP) has increased slightly for the entire industry, which is mainly due to technical changes rather than efficiency changes. The decomposition of efficiency change into purely technical components and

scale efficiency indicates that pure efficiency is found to be a more important source of efficiency change than the scale efficiency component. Rustyani & Rosyidi (2018) measure the efficiency and productivity of zakat institutions in Indonesia. The results of the MPI analysis show that in the first year there were two LAZs that experienced a decrease in productivity, namely LAZ Al-Azhar and PKPU. Four other LAZs experienced increased productivity, namely LAZ YDSF, ACT, Rumah Yatim, and Rumah Zakat. In the second year, three LAZs experienced an increase in productivity, namely LAZ Al-Azhar, PKPU, and Rumah Zakat, while the other three LAZs experienced a decrease in productivity, namely LAZ YDSF, ACT, and Rumah Yatim.

Al Parisi (2017) describes the level of efficiency and productivity of zakat institutions in Indonesia. There are 5 research objects, namely DD, BAZNAS, PKPU, YBM BRI and RZI with annual data from 2005 to 2014. The results of the study found that the lowest relative efficiency level was DD (2010) of 9.63%. In addition, about 80% of five OPZ increases productivity. In general, the main factor in the inefficiency of the five zakat institutions from 2005 to 2014 was caused by the distribution of zakat to ashnaf which was still not optimal so that it was not able to overcome the poverty rate. Furthermore, it is necessary to increase the collection and distribution of zakat funds by 31.53% and 47.87%. In addition, it is necessary to reduce socialization costs and operational costs by 11.81% and 8.79%.

Nurasyiah et al (2019) analyzed the efficiency and productivity of zakat institutions in Indonesia and Malaysia. The results of the study show that the first quadrant is the best efficient and productive institution obtained by zakat institutions in Indonesia, namely the Sinergi Foundation and 3 zakat institutions in Malaysia, namely Kedah, Melayu Perak, and Selangor. The second quadrant is very productive but low efficient achieved by zakat institutions in Indonesia, namely Baznas, RZ, Dompet Dhuafa and 1 zakat institution in Malaysia, namely Jawhar. The third quadrant is high efficient but low productive not achieved by any zakat institution in Indonesia or Malaysia. The fourth quadrant, low efficient and low productive, was achieved by 1 zakat institution in Indonesia, namely PKPU and 3 zakat institutions in Malaysia, namely Kelantan, PPZ and Pahang.

Another study, namely Pratama & Cahyono (2010) measured the efficiency and productivity of Indonesian Zakat Houses using the MPI method. Djaghballou et al (2018) measure the efficiency and productivity of zakat institutions in Algeria. Widiastuti et al (2021) mengaAsian Zakat Management Organization (ZMO) productivity analysis. Although various studies have been conducted regarding the productivity of zakat institutions, research regarding this matter is still quite limited. In addition, there is no research that comprehensively measures the productivity of zakat institutions in Indonesia with the 2016-2020 observation period. Therefore, this research needs to be conducted to see the level of productivity of zakat institutions in Indonesia.

METHOD

Research was conducted on zakat institutions in Indonesia with a range of 2016-2020. The data used comes from the annual reports of each institution which are accessed from their respective pages. To determine the research sample, the method used purposive sampling with the criterion that there are reports on the range of years of research, in order to obtain 15 zakat institutions.

In data processing, the approach is used Malmquist Productivity Index (MPI) to determine the productivity of zakat institutions. The MPI concept was introduced by Sten Malmquist in 1953 and then introduced by Caves, Christensen and Diewert (1982), which is a distance function approach to describe technology in explaining input, output, and productivity indices. The Malmquist index is an extension of the Data Envelopment Analysis (DEA) method to measure efficiency commonly used in the world of banking or other finance (Rani et al., 2017; Rusydiana et al., 2019). The variables used in the input are total assets, operational costs, and employee costs. While the output variable used the amount of collection and distribution of zakat.

RESULTS

Table 1: Productivity changes per year

Year	EFFCH	TECHCH	PECH	SECH	TFPCH
2	0.852	1.149	0.867	0.983	0.979
3	1.229	0.565	1.089	1.128	0.695
4	0.905	1.231	0.929	0.974	1.114
5	0.917	1.322	1.014	0.904	1.212
mean	0.966	1.014	0.971	0.994	0.979

Overall, zakat management institutions have achieved good productivity every year, seen from the average value of technology utilization which reaches 1,014. The level of productivity from year to year is also getting better which is marked by an increase except in the 3rd year.

Table 2: Productivity per DMU overall

Institutions	EFFCH	TECHCH	PECH	SECH	TFPCH
Government Org.					
BAZNAS	0.995	0.975	0.937	1.062	0.970
Mean	0.995	0.975	0.937	1.062	0.970
LSM/Privat					
LAZ Rumah Zakat	1.098	0.902	1.029	1.068	0.990
LAZ Dompet Dhuafa	0.938	1.109	1.079	0.869	1.040
LAZ IZI	0.860	0.979	0.972	0.885	0.842
YBM PLN	1.003	1.176	1.000	1.003	1.180
YATIM MANDIRI	0.958	0.806	0.975	0.983	0.772
RUMAH YATIM	1.047	1.101	1.164	0.899	1.152
LAZ MIZAN AMANAH	0.908	1.099	0.911	0.998	0.998
LAZ AL-AZHAR	1.044	1.037	1.054	0.990	1.083
Mean	1.048	1.104	1.065	1.036	1.114
Mass Organization					
LAZIS NU	1.000	1.363	1.000	1.000	1.363
LAZ DEWAN DA'WAH	1.215	1.020	1.000	1.215	1.238
Mean	1.108	1.192	1.000	1.108	1.301
Bank-based					
LAZNAS BSM	0.854	1.171	0.859	0.994	1.000
BMM	0.677	0.863	0.681	0.994	0.584
YBM BRI	1.000	0.871	1.000	1.000	0.871
BAMUIS BNI	1.000	0.884	1.000	1.000	0.884
Mean	1.000	1.171	1.000	1.000	1.000
Overall mean	0.966	1.014	0.971	0.994	0.979

Based on the results of data processing to determine the productivity of zakat management institutions in Indonesia from various types of organizations, it can be seen that institutions under CBOs achieve the highest productivity with an average score of 1,301. Meanwhile, Baznas, which is an organization under the government, did not achieve optimal productivity, with a productivity value of 0.970.

Table 3: Productivity of Zakat Institutions

Institutions	TFPCH			
	2017	2018	2019	2020
BAZNAS	0.934	0.980	0.717	1.346*
LAZ Rumah Zakat	0.780	1.354*	1.113*	0.818
LAZ Dompet Dhuafa	1.200*	0.756	1.050*	1.231*
LAZIS NU	1.449*	0.231	1.328*	7.786*
LAZ IZI	0.600	0.792	0.888	1.192*
YBM PLN	1.366*	0.937	1.252*	1.209*
YATIM MANDIRI	0.702	0.351	1.107*	1.303*
RUMAH YATIM	0.830	1.016*	1.282*	1.631*
LAZ DEWAN DA'WAH	1.976*	0.852	1.563*	0.894
LAZ MIZAN AMANAH	0.930	0.772	0.950	1.455*
LAZ AL-AZHAR	1.053*	1.000*	1.046*	1.247*
LAZNAS BSM	0.730	1.292*	1.223*	0.867
BMM	1.443*	0.149	0.710	0.763
YBM BRI	0.867	0.680	1.356*	0.721
BAMUIS BNI	0.678	0.798	1.575*	0.717

Sign* shows the institution has achieved optimal productivity

The level of development of institutional productivity can be seen from the TFPCH value (*Total Factor Productivity Changes*). Institutions are said to achieve optimal productivity when the TFPCH value reaches >1. Based on Table 3 it can be seen that most institutions experience fluctuations in terms of productivity from year to year with an increasing trend. Institutions that achieve optimal productivity also increase from year to year except in 2020. There is one institution that achieves optimal productivity every year, namely LAZ Al-Azhar while 14 other institutions achieve optimal productivity in certain years.

The highest productivity value in 2017 was achieved by LAZ Dewan Dakwah with a score of 1,976, while the lowest was 0,678 at BAMUIS BNI. The following year, namely 2018, LAZ Rumah Zakat achieved the highest optimal value among other institutions with the number 1,354. While the lowest score was 0.231 at LAZISNU. In 2018, 10 out of 15 zakat institutions experienced a decrease in productivity. In 2019 the value of productivity began to increase again so that more institutions achieved optimal productivity. The maximum score is achieved by BAMUIS BNI while the minimum score is found in Baitul Maal Muamalat (BMM). Furthermore, in 2020 productivity will increase again in some institutions in addition to a decrease in several other institutions. The highest score was achieved by LAZISNU while the lowest was by BAMUIS BNI.

FINDINGS

Based on the results of the analysis, several interesting findings were obtained, namely the first finding in general, zakat institutions experienced an increase in productivity, which was predominantly caused by technical changes compared to changes in efficiency. The results of this study are in line with research from Wahab & Rahman (2012) which states that total factor productivity (TFP) has increased in all zakat institutions studied in Malaysia, especially those caused by technical changes rather than efficiency changes. The same thing was stated by Djaghballou et al (2018) who explained that zakat institutions in Algeria experienced an increase in total factor productivity (TFP) for all zakat funds, which was due to technical changes rather than efficiency changes. Rusydiana (2018) also found that during the 2011-2016 research period, zakat institutions in Indonesia showed an increase in productivity growth, which was caused by technical changes compared to changes in efficiency. So, it can be concluded that technical change (TECH) has an important role in increasing productivity, and efficiency change (EFFCH) needs to be optimized.

According to Rusydiana (2018) the reason for the efficiency of zakat that is not optimal is that the distribution of zakat funds for ashnaf is still not optimal. This has been discussed previously by Ahmad & Ma'in (2014) who explained that in terms of collecting zakat funds it is still relatively low, causing inefficiencies in zakat institutions, which in turn affects the distribution

of zakat funds. Furthermore, Maulana & Fanani (2020) state that there is a dominant factor that causes inequality in the collection of zakat by zakat institutions due to the large number of muzakki who distribute their zakat not to official zakat institutions, but directly to individuals. Therefore, zakat institutions, both government and private, must make productive zakat programs more effective (Sutrisno & Haron, 2020). Furthermore, management also plays an important role in increasing the productivity of zakat institutions, where management can focus on increasing technical efficiency and cost efficiency (Meisuri et al., 2021). In addition, the way that also needs to be done by zakat management to increase the productivity of zakat is to increase transparency and accountability in the management of zakat. The more transparent and accountable zakat institutions are, the higher the level of public trust, which in turn can foster awareness, compliance and motivation of the community to distribute zakat (Rahman, 2015).

The next finding is related to zakat institutions originating from mass organizations having the highest average productivity compared to other organizations. However, in general the highest productivity was achieved by LAZISNU. Meanwhile, Baznas itself, which is an institution of the government, actually has lower productivity compared to institutions from other organizations. However, the institution with the lowest productivity is BMM (Baitul Maal Muamalat). Furthermore, if productivity is seen from year to year in each institution, there is one institution with optimal productivity in all years of observation, namely LAZ Al-Azhar, although its productivity figure is not the highest score when compared to other institutions each year. The results of this study are similar to research from Haryadi et al (2022) where in their research it was found that government zakat institutions, namely Baznas RI, have a low level of productivity compared to institutions from other organizations such as private and public organizations, for example BMM, LAZISNU, Rumah Zakat, and so on. . Furthermore, the study also found that LAZISNU is one of the zakat institutions with high productivity.

Differences in the level of productivity at each zakat institution can be caused by several things, including in terms of human resources (HR) owned by the institution. Hasan et al (2019) explain that Human Resources (HR) management plays an important role in increasing the productivity of zakat institutions, in which case zakat institutions must focus on aligning the HR practices of zakat institutions with their goals and objectives to increase their productivity levels. In addition, HR management at zakat institutions must also focus on empowering mustahik through business growth to increase their welfare and productivity levels (Widiastuti et al., 2021). This explains that the quality and quantity of human resources owned by zakat institutions can affect the productivity of the institution. The more quality and number of human resources owned by zakat institutions, the more likely the productivity of zakat institutions will increase. In addition, the management of zakat funds must also be considered. Efficient, accountable and transparent management of zakat funds can affect the productivity of zakat institutions. The better the management of zakat funds, the more likely the productivity of zakat institutions will increase. This was explained by Rahman (2015) that the level of transparency and accountability of zakat institutions can increase public trust in zakat institutions which ultimately affects the productivity of zakat institutions in collecting and distributing zakat funds.

Furthermore, it can also be concluded that institutions that can achieve optimal productivity have implemented good management and use of resources. This has also been proven by research from Retnowati (2018) that optimal productivity of zakat institutions can be achieved through good management and efficient use of resources. Adiwijaya & Suprianto (2020) in their research concluded that for a zakat institution to be considered an institution with good governance, it must meet several criteria, such as distribution, efficiency and financial reporting criteria. Therefore, it is necessary for zakat institutions to meet these criteria in order to achieve productivity. Zakat institutions can also increase the use of technology to help increase the productivity of their institutions. Utilization of digital technology or fintech can be used to facilitate the transformation of zakat collection and distribution (Salleh et al., 2022), as well as technology improvements to address gaps in zakat application procedures and governance (Syed Yusuf et al., 2022).

CONCLUSION

Based on the results of data processing of zakat institutions in 2016-2020 with MPI, it can be concluded that in general, zakat institutions have experienced an increase in productivity over time. The productivity of zakat institutions can be measured from the TFPCH value (*Total Factor Productivity Changes*). Zakat institutions originating from mass organizations have the highest average productivity compared to other organizations. However, in general, the highest productivity was

achieved by LAZISNU with a TFPCH of 1,363. Meanwhile, Baznas itself, which is a government institution, actually has lower productivity compared to institutions from other organizations on average, namely 0.970. However, the institution with the lowest productivity is BMM (Baitul Maal Muamalat) with a TFPCH score of 0.584. If productivity is seen from year to year in each institution, there is one institution with optimal productivity in all years of observation, namely LAZ Al-Azhar, although its productivity figure is not the highest score when compared to other institutions each year.

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Appendix: DEAP Results

MALMQUIST INDEX SUMMARY					
year =	2				
firm	effch	techch	pech	sech	tfpch
1	0.691	1.351	1.000	0.691	0.934
2	0.888	0.878	0.819	1.085	0.780
3	0.817	1.468	1.202	0.680	1.200
4	1.000	1.449	1.000	1.000	1.449
5	0.642	0.934	0.603	1.065	0.600
6	0.946	1.444	1.000	0.946	1.366
7	1.013	0.693	0.844	1.199	0.702
8	0.566	1.467	0.639	0.885	0.830
9	1.632	1.211	1.000	1.632	1.976
10	0.733	1.269	0.558	1.314	0.930
11	0.980	1.074	1.215	0.807	1.053
12	0.462	1.581	0.538	0.859	0.730
13	1.000	1.443	1.000	1.000	1.443
14	1.000	0.867	1.000	1.000	0.867
15	0.961	0.705	1.000	0.961	0.678
mean	0.852	1.149	0.867	0.983	0.979
year =	3				
firm	effch	techch	pech	sech	tfpch
1	2.898	0.338	1.000	2.898	0.980
2	3.149	0.430	1.368	2.301	1.354
3	1.189	0.636	0.769	1.545	0.756
4	0.376	0.615	0.421	0.893	0.231
5	1.478	0.536	1.860	0.795	0.792
6	1.072	0.875	1.000	1.072	0.937
7	0.529	0.664	0.868	0.610	0.351
8	1.649	0.616	1.655	0.996	1.016
9	1.630	0.523	1.000	1.630	0.852
10	1.202	0.643	1.155	1.040	0.772
11	1.689	0.592	1.821	0.927	1.000
12	1.653	0.781	1.447	1.142	1.292
13	0.685	0.218	1.000	0.685	0.149
14	1.000	0.680	1.000	1.000	0.680
15	1.040	0.768	1.000	1.040	0.798
mean	1.229	0.565	1.089	1.128	0.695

year =	4				
firm	effch	techch	pech	sech	tfpch
1	0.559	1.284	0.830	0.673	0.717
2	1.000	1.113	1.000	1.000	1.113
3	0.936	1.121	1.263	0.741	1.050
4	1.240	1.071	1.693	0.732	1.328
5	0.697	1.274	0.554	1.257	0.888
6	1.000	1.252	1.000	1.000	1.252
7	0.962	1.151	0.950	1.013	1.107
8	1.040	1.232	0.988	1.053	1.282
9	1.400	1.116	1.000	1.400	1.563
10	0.857	1.108	0.847	1.012	0.950
11	0.951	1.100	0.862	1.103	1.046
12	0.909	1.345	0.964	0.943	1.223
13	0.478	1.485	0.511	0.935	0.710
14	1.000	1.356	1.000	1.000	1.356
15	1.000	1.575	1.000	1.000	1.575
mean	0.905	1.231	0.929	0.974	1.114
year =	5				
firm	effch	techch	pech	sech	tfpch
1	0.875	1.539	0.927	0.943	1.346
2	0.520	1.571	1.000	0.520	0.818
3	0.851	1.446	1.163	0.732	1.231
4	2.148	3.625	1.404	1.530	7.786
5	0.828	1.440	1.434	0.578	1.192
6	1.000	1.209	1.000	1.000	1.209
7	1.637	0.796	1.300	1.260	1.303
8	1.239	1.317	1.758	0.705	1.631
9	0.584	1.530	1.000	0.584	0.894
10	0.902	1.613	1.259	0.716	1.455
11	0.754	1.653	0.648	1.164	1.247
12	0.766	1.132	0.726	1.056	0.867
13	0.642	1.189	0.421	1.524	0.763
14	1.000	0.721	1.000	1.000	0.721
15	1.000	0.717	1.000	1.000	0.717
mean	0.917	1.322	1.014	0.904	1.212