



The effect of digital banking trends on the growth of banking fee-based income

Novi Handayani Simbolon

Jurusan Akuntansi/Program Studi Keuangan dan Perbankan, Politeknik Negeri Medan, Indonesia

ARTICLE INFO

Article history:

Received Oct 25, 2023

Revised Nov 03, 2023

Accepted Nov 09, 2023

Keywords:

Fee Based Income;
Mobile Banking;
Payment Gateway;
QRIS;
Trend.

ABSTRACT

The development of information technology which is very significant in the current 4.0 revolution era is increasingly directing the creation of changes in consumption patterns in people's lives that are moving towards digital, thus encouraging the banking industry to accelerate the transformation into digital banks that are packaged and developed with the aim of providing fast and fully accessible services independently by customers while still prioritizing the principle of security over the confidentiality of personal data optimized through digital technology systems by issuing digital banking services. This study aims to determine the effect of digital banking trends on the growth of banking fee-based income in Indonesia through a quantitative data analysis process obtained through secondary data documentation techniques through the website of each bank which is then processed using the help of the Eviews 10 program through panel data regression tests. The population in this study were all Persero Banks in Indonesia for the period 2018 to 2022, totaling 5 banks. The sample selection was carried out using purposive sampling technique and it was found that only 4 banks met the criteria, so the number of observations in this study was 20 observations. Based on data processing, the research results state that both mobile banking services, payment gateway services, and QRIS services have a significant positive effect on the growth of fee-based income of Bank Persero in Indonesia for the period 2018 to 2022.

This is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license.



Corresponding Author:

Novi Handayani Simbolon,
Jurusan Akuntansi/Program Studi Keuangan dan Perbankan,
Politeknik Negeri Medan,
Jalan Almamater No. 1, Medan, Sumatera Utara, 20155, Indonesia.
Email: novihandayani@polmed.ac.id

1. INTRODUCTION

The rapid advancement of information technology in the 4.0 revolution era has made all lines of industry strive to adopt information technology into their business activities to maintain business continuity and increasing business competition, including business activities in the banking industry (Pembangunan et al., 2022). Information technology itself can be interpreted as a technique for collecting, storing, processing, and analyzing, as well as distributing information (POJK, 2022). In the banking industry, information technology cannot be separated from bank operational activities, because it has a very

vital role in maintaining the smooth running of these activities. Initially, information technology was only used as a means of supporting bank activities, but now banking activities are highly dependent on the use of information technology in the midst of intense competition in the banking industry (Simamora & Waspada, 2023). In recent years, the banking industry has introduced internet-based bank to improve operational activities and to reduce costs (Arisanti & Prihatiningsih, 2019).

The rapid advancement of information technology directly directs changes in the consumption patterns of people's lives towards digital, which encourages the banking industry to accelerate its transformation into a digital bank developed to provide services to customers in the form of fast and fully accessible services independently while still prioritizing security that is optimized through digital technology systems (Kornelis, 2021) and technology can enter every dimension of life (Aisyah & Ali, 2023). The demand for digital acceleration continues to increase with the shift in public expectations for financial services that can be accessed whenever needed and wherever the customer is with a system that is faster, more efficient, but still prioritizes the security of user data. Thus, banking institutions must arrange digital transformation to be one of the main priorities that can be used as a strategy to survive in the midst of intense competition in the banking world (Magaya, 2020). Based on Sikapi/OJK/2019, the urgency of banking digitalization in Indonesia is triggered by three main factors. First, digital opportunity, which is reflected in the demographic potential of Indonesia's regions, economic potential, and the rapid growth of internet usage. Second, digital behavior, which is reflected in the increasing number of ownership of devices in line with the increasing use of mobile-based applications. Third, the existence of digital-based transactions reflected in the increasing volume of transactions in e-commerce applications and electronic money.

Indonesia is the fifth country with the highest record of internet users in the world, which has an internet usage intensity of 28% above the average internet user in the world (World Bank, 2021 dalam Gustianawati Sutarja et al., 2023). This is of course closely related to the rapid development of information technology. Penetration in internet usage in Indonesia continues to increase from year to year, namely an increase of 213 million users or 77% of the total population in Indonesia with a record of using the internet for 8 hours 36 minutes (Sain & Hayat, 2023). With that many internet users, the banking industry captures the opportunity to survive in the midst of intense competition which spurs banks to provide better quality services to customers with an effective, efficient and sustainable implementation system. This can be realized by increasing the bank's capability in aligning strategies that are more focused on goals by utilizing information technology innovations that are now developing so rapidly in parts of the world, especially in Indonesia. The alignment of a more goal-focused strategy can be implemented by expanding the range of access to financial services to the community in order to create financial inclusion that can be assisted by information technology, namely by issuing digital banking services (Nuraini et al., 2022).

(Sicillia & Yazid, 2020) state that digital banking is an application-based technology adopted by the banking industry by utilizing technological advances. Digital banking is useful in encouraging the creation of financial inclusion, because it can expand the accessibility of the banking world, so that the ease of accessing bank financial services can be felt by all Indonesian people which will affect the smooth running of the economy in Indonesia. (Motion Bank, 2023) state based that the value of digital banking transactions in the last five years has always increased. In January 2023, the value of digital transactions in Indonesia reached Rp 4,600 trillion or around Rp 4.6 quadrillion. The transaction value includes digital banking transactions that are currently growing, namely mobile banking, payment gateways, and Quick Response Code Indonesia Standard or often known as QRIS which is the discussion in this study.

Nowadays, mobile banking, payment gateway, and QRIS are an innovation in banking industry that can not separate from this industry (Idawati & Syafputri, 2022).

Mobile banking is one of the banking industry services that can be accessed by the public using devices connected to the internet (Hidayat et al., 2021). Having a very flexible nature causes mobile banking to be a service that is most in demand by the community due to the flexibility obtained by using financial services such as making transfers, purchases, payments to making cash withdrawals without cards at ATM machines using only the devices owned by the community. One of the goals of banks launching mobile banking services is to provide satisfaction to customers, because it can increase customer productivity (Penerapan et al, 2022). Then, payment gateway service is a service that offers online payment services which was inaugurated by Bank Indonesia in 2017 with a system called the National Payment Gateway (GPN) with the aim of integrating various payment instruments (Redaksi OCBC NISP, 2023). Meanwhile, the QRIS service is a combination of various types of QR codes on Payment System Service Providers (PJSP) which are then further developed by Bank Indonesia by collaborating with industries in the payment system, resulting in transactions that are easy and fast, and safe. QRIS services in the banking industry experienced a fairly significant increase in 2023, which amounted to 104.64% year on year (Michelle, 2023).

(Setiyono et al., 2021) state that the increase in transactions made through mobile banking, payment gateways, and QRIS will increase revenue for banks, because in general banks will charge services to customers who use these three services, so the more transactions made should provide a lot of income to the bank. The purpose of providing bank services is to expedite the collection of funds and the distribution of funds to ensure the movement of economy (Sugiyarti & Hafiza Fatiha, 2023). The income earned by banks through digital banking is classified as income sourced from fee-based income or often referred to as non-interest income (Yaqinah, 2022). Various efforts have been made by banks to increase fee-based income, because it will increase the bank's profit (Asiska & Dian Pratiwi, 2022). The sources of fee based income are transfer, clearing services, inkaso or collection services and safe deposit box (Yaqinah, 2022) and that fee-based income can be able to maintain the stability of the bank's income in the long term (Khotijah & Sugiyono, 2021). (Ferli, 2022) state that one of the efforts to maintain a source of income for banks is to increase non-interest income. When interest rates decline, banks only earn less income from loan interest. This condition requires banks to look for various other sources of revenue for banks, such as fee-based income, which is one source of revenue that is classified as safe from risk and can also be an indicator of banking performance (Indri Sanabila Saffana et al., 2023) because from year to year, the trend of fee-based income continues to increase (Suardana & Kustina, 2017). In line with the research results obtained by (Syahputra & Suparno, 2022) who state that the number of transactions or frequency can be one of the references that influence success in adopting mobile banking, because its service products can generate fee-based income. In other hand, (Kando Surahmi, 2022)state that there is a negative significant impact of payment gateway on fee based income From this explanation and the gap that occurs in the results of previous research, it is very important to conduct further research in order to obtain data on how much influence the trend of transactions carried out by utilizing digital banking has on the growth of fee-based income of banks, especially Persero Banks in Indonesia for the period 2018-2022.

2. RESEARCH METHOD

This research is a quantitative study that uses secondary data, namely annual reports published on each bank's website through documentation techniques. This data is processed in the hope of being able to interpret the effect of mobile banking transaction trends, payment gateways, and QRIS on fee-based income growth. The population in this

study is all Persero banks or often referred to as BUMN Banks in Indonesia for the period 2018-2022, which is a total of 5 banks. The sample selection was carried out with a purposive sampling technique which has the criteria that the bank launches digital banking products in the form of mobile banking, paymnet gateway and QRIS, and submits the digital banking transactions in the annual report of each bank. The number is 20 observations, because the research period is 5 years. In addition to using Microsoft Excel in analyzing data, this study also uses regression analysis techniques on panel data with the help of the Eviews 10 program. In determining the estimation model for panel data that is tested to be very suitable for the data to be studied, there are three ways that can be implemented, namely by testing through the Chow test and the Hausman test, as well as the Lagrange Multiplier test.

3. RESULTS AND DISCUSSIONS

3.1. Chow Test

The purpose of data processing through the chow test is to determine one of the models in panel data estimation that is most appropriate to use, namely between the common effect or fixed effect. The following shows the results of the chow test panel data estimation.

Table 1. The result of chow test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	19.433015	(9,234)	0.0000
Cross-section Chi-square	64.290115	5	0.0000

Source : Processed with *eviews 10*

From Table 3.1, it can be seen that the cross section F value is 19, 433015 with a chi square of 64.290115 and the resulting probability level is smaller than the significance level ($0.00 < 0.05$), so it can be concluded that this research is more appropriately analyzed using the fixed effect panel data regression model. Furthermore, testing is needed to be able to determine a model that is most appropriate for researchers to use, namely the fixed effect or random effect method.

3.2. Hausman Test

This Hausman test has a purpose, which is to determine the use of the most appropriate panel data model between fixed effect or random effect.

Table 2. The result of hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.023640	3	0.6471

Source : Processed with *Eviews 10*

Based on Table 3.2, it can be seen that the cross section random value is 4.023640 with a probability value of 0.6471 which is higher than the significance level, meaning that it is more appropriate to use a random effect model in this study. In the random effect model, there is an assumption that the error for each individual with the combination error will not be correlated, so classical assumption testing is not required (Sakti, 2018).

3.3. The Result of Regression Equation Test

Through the data that has been processed with the Hausman test, it is known that the most suitable model used in this study is the random effect method which is presented in the table as follows :

Table 3. The result of hausman test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.397680	0.613435	8.29802	0.0000
Mobile Banking	0.032720	0.005714	6.053786	0.0034
Payment Gateway	0.212511	0.046066	2.171056	0.0251
QRIS	0.357619	0.032080	4.132056	0.0030

Source : Processed with Eviews 10

Referring to the statistical data output that we get from eviews 10, the regression equation in this open research can be presented as follows: Fee Based Income = 4,397 + 0,032 Mobile Banking + 0,212 Payment Gateway + 0,357 QRIS.

The interpretation of the regression equation above is as follows (a) Constant ($\alpha = 4,397$). This means that if all values of the independent variables Mobile banking, payment gateway, and QRIS are constant or equal to zero, then the value of Fee Based Income is 4.397%. (b) Mobile Banking ($\beta_1 = 0,032$). This means that mobile banking has a positive influence on fee-based income growth and every 1% increase in mobile banking value is accompanied by an increase in fee-based income of 0.032%, assuming other independent variables are ceteris paribus. (c) Payment Gateway ($\beta_2 = 0,2125$). This value interprets that Paymnet Gateway has a positive effect on fee-based income growth and if there is an increase in the value of Payment gateway by 1%, it will be followed by an increase in the value of fee-based income by 0.2125% also with an assumption that other independent variables are in ceteris paribus conditions. (d) QRIS ($\beta_3 = 0,3576$). This means that it can be concluded that QRIS has a positive effect on fee-based income growth and every 1% increase in QRIS value will be followed by an increase in fee-based income value of 0.3576% with an assumption that other independent variables are ceteris paribus.

3.4. Partial T-Test

Statistical data obtained from the t-test results in table 4.3 and with a t-table value of 1.717 at a probability level of 0.05 ($\alpha = 5\%$, $df = 22$, two tailed), it is concluded as below : (a) The t-count value of Mobile Banking is positive at 6.0537 with a probability 0.0034. This means that mobile banking has a positive and significant influence in predicting fee-based income growth. (b) The t-count value of Payment Gateway is positive at 2.1710 with probability 0.0251, reflecting that Payment Gateway has a significant positive effect in predicting fee-based income growth. (c) The positive t-count value of QRIS 4.1320 with probability value 0.030 illustrates that QRIS services have a significant positive effect if used in predicting fee-based income growth.

3.5. Simultaneous F-Test

(Wijayanti et al., 2021) state that F-test is a joint test to determine the effect of each independent variable on dependent variable. Based on data processing, information on the F test results is obtained as follows :

Tabel 4. Simultaneous test results (F)

Weighted Statistics			
R-squared	0.691024	Mean dependent var	0.259267
Adjusted R-squared	0.682003	S.D. dependent var	0.927700
S.E. of regression	0.423418	Sum squared resid	45.02213
F-statistic	65.27752	Durbin-Watson stat	1.460148
Prob(F-statistic)	0.000000		0.000000

Source : Processed with eviews 10

With the results as mentioned above, the F-statistic value of $65.277 > 3.0724$ F-Table is obtained with a probability $0.000 < 0.05$. This indicates that all independent

variables examined in this study, namely mobile banking services, payment gateways, and QRIS have a significant effect simultaneously when used to predict the value of fee-based income growth.

3.6. Determination Coefficient Test

The testing of the coefficient determination serves to get an idea of how strong the capability of mobile banking, payment gateway, and QRIS variables is in influencing the growth of fee-based income variables. The data presented in table 4.4.2 explains that the coefficient of determination of this study is 69.1%, which indicates that the mobile banking, payment gateway, and QRIS variables are able to explain their influence well on the fee-based income variable. Thus, it is also known that a proportion of 31.9% more may be explained or influenced by the existence of other variables that have not been included in the equation in this study.

4. CONCLUSION

Referring to the data generated through panel data regression testing and analysis and discussion that has been carried out in the study, it is concluded that the variables of mobile banking and payment gateway, as well as QRIS have a partially significant positive effect on the growth rate of fee-based income. Then, the results also show that the variables of mobile banking, payment gateway, and QRIS have a significant positive effect simultaneously on the growth of fee-based income of state-owned banks in Indonesia from 2018 to 2022. It means, the transformation of information technology that forces banks to carry out the digitalization process has a good impact on the growth of the bank, namely increasing the revenue earned from services offered to the public by utilizing technological developments, so banks need to design innovations for other digital products if banks want to increase revenue from this segment. the transformation of information technology.

This study has limitations in terms of the interval of the research period conducted, which is only limited to five years of research. With the use of data in the form of secondary data, it would be better if the research period began since mobile banking, payment gateway, and QRIS services were launched. Furthermore, this study also has limitations on the independent variables used. In addition to the three services that have been examined in this study, there are still several other digital banking services that might be researched to determine their effect on the growth of bank fee-based income received by banks. This is supported by the results of the coefficient of determination in this study of 69.1%. This means that there is a possibility of 31.9% of other digital banking services that can affect fee-based income growth.

Based on the limitations of this study, future researchers are advised to expand the research period interval and the research object used to measure the growth of bank fee-based income. We recommend that the research period starts from the time digital banking services appear in the banking industry and the research object is all banks that have digital banking products in that period. Then, future researchers should also add other variables, so that the resulting coefficient of determination can be close to 100%. provide a statement that what is expected, as stated in the "Introduction" chapter can ultimately result in "Results and Discussion" chapter, so there is compatibility. Moreover, it can also be added the prospect of the development of research results and application prospects of further studies into the next (based on result and discussion).

REFERENCES

- Aisyah, S. N., & Ali, H. (2023). The Effect Of Digital Transaction Effectiveness, Financial Inclusion And Customer Satisfaction On Company Profits. *Dinasti International Journal Of Economics, Finance, And Accounting*, 4(3). <https://doi.org/10.38035/Dijefa.V4i3>

- Arisanti, O. R., & Prihatiningsih, P. (2019). Pengaruh Transaksi Electronic Banking Terhadap Fee Based Income Pada Pt Bank Cimb Niaga, Tbk Periode 2014 – 2017. *Keunis*, 7(1), 77–90. <https://doi.org/10.32497/Keunis.V7i1.1534>
- Asiska, N., & Dian Pratiwi, P. (2022). Pengaruh Fee Based Income Dan Transaksi E-Banking Terhadap Perubahan Laba Bank Bumn. *Jurnal Fokus Manajemen Bisnis*, 12(1), 43–53. <https://doi.org/10.12928/Fokus.V12i1.5702>
- Ferli, O. (2022). Digital Products Increase Fee-Based Income Banking In Indonesia. *Jurnal Ilmu Manajemen Dan Ekonomika*, 15(1).
- Gustianawati Sutarja, D., Dwi Lestari, E., & Dewi, H. (2023). (Printed) An Empirical Study Of Factors Influencing Digital Banking Intention Use In Indonesia An Empirical Study Of Factors Influencing Digital Banking Intention Use In Indonesia. *International Journal Of Entrepreneurship And Business Development*, 06.
- Hidayat, Y., Hafitri, G., & Kunci, K. (2021). Pengaruh Internet Banking Dan Mobile Banking Terhadap Kinerja Keuangan Bank. In *Jurnal Pendidikan Manajemen Bisnis* (Vol. 21, Issue 1). www.ojk.go.id
- Idawati, W., & Syafputri, S. A. (2022). The Effect Of Digital Financial, Credit Risk, Overhead Cost, And Non-Interest Income On Bank Stability. In *Inquisitive* (Vol. 3, Issue 1). <http://journal.univpancasila.ac.id/index.php/inquisitive/>
- Indri Sanabila Saffana, Azib, & Nadia Meirani. (2023). Pengaruh Transaksi Electronic Banking Dan Fee Based Income Terhadap Profitabilitas Perbankan. *Bandung Conference Series: Business And Management*, 3(1). <https://doi.org/10.29313/Bcsbm.V3i1.6855>
- Kando Surahmi, T. I. (2022). The Impact Of Fintech Payment On Bank Fee-Based Income. *Jurnal Ilmu Ekonomi*, 11(2), 425–436.
- Khotijah, S., & Sugiyono, A. (2021). Pengaruh Fee Based Income Dan Interest Income Terhadap Pendapatan Perusahaan (Studi Empiris Bank Bumn Indonesia Periode. *Jurnal Pemikiran & Penelitian Ekonomi*, 09(01).
- Kornelis, Y. (2021). *Digital Banking Consumer Protection: Developments & Challenges*. <https://ejournal.undiksha.ac.id/index.php/jkh>
- Kuartal Ii 2023, Nilai Transaksi Digital Banking Tembus Rp13 Ribu Triliun. (2023). <https://motionbank.id/kuartal-ii-2023-nilai-transaksi-digital-banking-tembus-rp13-ribu-triliun/>.
- Magaya, W. (2020). The Impact Of Digital Banking Services On Performance Of Commercial Banks. *Journal Of Management Information And Decision Sciences*, 23(1s).
- Nuraini, M., Husni, T., & Adrianto, F. (2022). Pengaruh Inovasi Layanan Electronic Banking, Fee Based Income Dan Efektivitas Pengendalian Internal Terhadap Nilai Perusahaan Perbankan Yang Terdaftar Di Bursa Efek Indonesia. *J-Mas (Jurnal Manajemen Dan Sains)*, 7(2), 787. <https://doi.org/10.33087/Jmas.V7i2.650>
- Pembangunan, T. ; Berkelanjutan, E., Yudhanto, W., Sijabat, Y. P., Giovanni, A., Program, S., Manajemen, F., Ekonomi, U., & Tidar, I. (2022). *Inovasi Perbankan Digital Dan Kinerja Perbankan Di Indonesia* (Vol. 19). <http://jurnal.untidar.ac.id>
- Penerapan, J., Informasi, T., Komunikasi, D., Hernandez, A., & David, F. (N.D.). *It-Explore Pengaruh Mobile Banking Terhadap Kepuasan Nasabah Bank Dalam Transaksi Sehari-Hari*.
- Yaqinah, N. (2022). Pengaruh Fee Based Income, Spread Bagi Hasil Dan Financing To Deposit Ratio Terhadap Profitabilitas. *Jurnal Ekonomi Syariah*, 1(2).
- Redaksi Ocbcnisp. (2023). *Payment Gateway: Pengertian, Manfaat, Dan Cara Kerjanya*. <https://www.ocbcnisp.com/ld/article/2021/07/15/payment-gateway>.
- Ringkasan Pojk 11 - 03 - 2022. (N.D.).
- Sain, F., & Hayat, A. (N.D.). The Influence Of Digital Banking Services On Rentability And Risk Profile Of Banks With The Covid-19 Pandemic And Capital As A Moderating Variable. In *Jurnal Office: Jurnal Pemikiran Ilmiah Dan Pendidikan Administrasi Perkantoran* (Vol. 9, Issue 1). <http://ojs.unm.ac.id/jo>
- Setiyono, T. A., Hidayatullah, S. K., Bank, S., & Jateng, B. (2021). *Analisis Tren Pertumbuhan Fee Based Income (Fbi) Dan Interest Based Income (Ibi) Di Masa Pandemi Covid-19*. 20(2). <https://doi.org/10.32639/Fokusbisnis.V19i2.852>
- Sicillia, M., & Yazid, A. (N.D.). *Analisis Dampak Digital Banking Dan Kualitas Pelayanan Terhadap Kepuasan Nasabah Pada Sebuah Bank Swasta*. <http://www.openjournal.unpam.ac.id/index.php/jpk>
- Simamora, S. C., & Waspada, I. (2023). Peran Fee-Based Income Sebagai Mediator Antara Layanan Digital Perbankan Dengan Kinerja Keuangan Di Bank Swasta Yang Terdaftar Di Bei. *Journal*

- Of Management And Business Review*, 20(2), 170–189.
<https://doi.org/10.34149/Jmbr.V20i2.434>
- Suardana, P. A., & Kustina, K. T. (2017). Pengaruh Fee Based Income Dan Transaksi E-Banking Terhadap Perubahan Laba Pada Pt. Bank Pembangunan Daerah Bali. *Jurnal Ilmiah Akuntansi Dan Bisnis*, 2.
- Sugiyarti, L., & Hafiza Fatiha, V. (2023). Faktor Yang Mempengaruhi Fee-Based Income Pada Kelompok Bank Berdasarkan Modal Inti (Kbmi) 4. In *Maret 2023* (Vol. 21, Issue 1). <http://jurnalnasional.ump.ac.id/index.php/kompartemen/>
- Syahputra, R., & Suparno, S. (2022). Pengaruh Penggunaan Internet Banking Dan Mobile Banking Terhadap Kinerja Keuangan Perbankan (Studi Pada Perbankan Yang Terdaftar Di Bursa Efek Indonesia 2016-2020). *Jurnal Ilmiah Mahasiswa Ekonomi Akuntansi*, 7(3), 379–388.
<https://doi.org/10.24815/jimeka.v7i3.21114>
- Wijayanti, R. P., Salma, U., Azizah, A., Daulay, Y., & Nugroho, A. W. (2021). *Ijeba The Effect Of Digital Banking Innovation On The Performance Of Conventional Commercial Banks In Indonesia* (Vol. 2, Issue 2). <http://ijeba.makarioz.org/>
- Yaqinah Inayatil Nuriyatul. (2022). Pengaruh Fee Based Income, Spread Bagi Hasil Dan Financing To Deposit Ratio Terhadap Profitabilitas. *Jurnal Ekonomi Syariah*, 1(2).