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# IDEAL SELF-CONGRUENCE: NEOBANKING BY TRADITIONAL BANKS AND THE IMPACT ON MARKET SHARE - A CASE OF UAE BANKS

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## ABSTRACT

**Purpose:** The aim of this study is to examine the effect of adopting neobanking on the market share of traditional banks in the UAE and test the influence of financial performance indicators on the banks' market share after the digital transformation.

**Theoretical framework:** The financial service sector has been undergoing major transformation due to technological developments and innovations in terms of operating efficiency, client acquisition and organizational structure. Banks are accelerating digital transformation in an attempt to enhance digital presence, lower costs and gain market share. Neobanking is a recent innovation in the Fintech space that has disrupted the financial services sector.

**Design/methodology/approach:** This study employs published data of quarterly financial statements from 2012- 2021. Chow Test was applied, with known structural breaks in the data, based on the implementation of neobanking and our results are based on pooled regression.

**Findings:** The results reveal that neobanking has influenced the bank specific factors and those factors have affected the market share. NPL, ROE and NIM are critical for the market share with each variable affecting all banks contrarily. This paper further identifies that NPL and NIM has a favourable impact on the market share of only one bank. Cost efficiency has no effect on the market share of the banks in the period after launching neobanking.

**Research, Practical & Social implications:** The study has important implications for the management of banks as the results affirm that structural changes made to adopt digital transformation by firms is the key to derive the favorable effects in terms of increased revenue, profitability and lower credit risk.

**Originality/value:** Neobanking is the most recent disruptor in the financial services sector and effect of digitalization in banking sector is becoming the focus of literature of commercial banks. This paper provides insights into bank specific variables that impact financial performance after its digital transformation.

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**AUTOCONGRUÊNCIA IDEAL: NEOBANKING POR BANCOS TRADICIONAIS E O IMPACTO NA PARTICIPAÇÃO DE MERCADO - UM CASO DE UAE BANKS**

**RESUMO**

**Objetivo:** O objetivo deste estudo é examinar o efeito da adoção do neobanking na participação de mercado dos bancos tradicionais nos EAU e testar a influência dos indicadores de desempenho financeiro na participação de mercado dos bancos após a transformação digital.

**Estrutura teórica:** O setor de serviços financeiros vem passando por grandes transformações devido a desenvolvimentos tecnológicos e inovações em termos de eficiência operacional, aquisição de clientes e estrutura organizacional. Os bancos estão acelerando a transformação digital em uma tentativa de aumentar a presença digital, reduzir custos e ganhar participação de mercado. O Neobanking é uma inovação recente no espaço da Fintech que tem perturbado o setor de serviços financeiros.

**Design/metodologia/abordagem:** Este estudo emprega dados publicados de demonstrações financeiras trimestrais de 2012 a 2021. O Chow Test foi aplicado, com quebra estrutural conhecida nos dados, com base na implementação do neobanking e nossos resultados são baseados em regressão agrupada.

**Conclusões:** Os resultados revelam que o neobanking influenciou os fatores específicos do banco e que esses fatores afetaram a participação de mercado. NPL, ROE e NIM são críticos para a participação de mercado com cada variável afetando todos os bancos de forma contrária. Este documento identifica ainda que o NPL e o NIM têm um impacto favorável na participação de mercado de apenas um banco. A eficiência de custos não tem efeito sobre a participação de mercado dos bancos no período após o lançamento do neobanking.

**Pesquisa, implicações práticas e sociais:** O estudo tem implicações importantes para a gestão dos bancos, pois os resultados afirmam que as mudanças estruturais feitas para adotar a transformação digital pelas empresas é a chave para obter os efeitos favoráveis em termos de aumento de receita, lucratividade e menor risco de crédito.

**Originalidade/valor:** O Neobanking é o mais recente disruptor no setor de serviços financeiros e o efeito da digitalização no setor bancário está se tornando o foco da literatura dos bancos comerciais. Este documento fornece insights sobre variáveis específicas dos bancos que impactam o desempenho financeiro após sua transformação digital.

**Palavras-chave:** Neobanking, Bancos tradicionais, Participação de mercado, NPL, NIM, ROE.

**AUTOCONGRUENCIA IDEAL: EL NEOBANKING DE LOS BANCOS TRADICIONALES Y SU IMPACTO EN LA CUOTA DE MERCADO - UN CASO DE LOS BANCOS DE LOS EAU**

**RESUMEN**

**Objetivo:** El objetivo de este estudio es examinar el efecto de la adopción del neobanking en la cuota de mercado de los bancos tradicionales de los EAU y comprobar la influencia de los indicadores de rendimiento financiero en la cuota de mercado de los bancos tras la transformación digital.

**Marco teórico:** El sector de los servicios financieros ha experimentado una importante transformación debido a los avances tecnológicos y a las innovaciones en términos de eficiencia operativa, captación de clientes y estructura organizativa. Los bancos están acelerando la transformación digital en un intento de mejorar la presencia digital, reducir los costes y ganar cuota de mercado. El neobanking es una innovación reciente en el espacio Fintech que ha perturbado el sector de los servicios financieros.

**Diseño/metodología/enfoque:** Este estudio emplea datos publicados de estados financieros trimestrales de 2012-2021. Se aplicó la prueba de Chow, con rupturas estructurales conocidas en los datos, en función de la implantación del neobanking y nuestros resultados se basan en la regresión agrupada.

**Resultados:** Los resultados revelan que el neobanking ha influido en los factores específicos de los bancos y esos factores han afectado a la cuota de mercado. La morosidad, el ROE y el NIM son críticos para la cuota de mercado, y cada variable afecta a todos los bancos de forma contraria. Este documento identifica además que la morosidad y el NIM tienen un impacto favorable en la cuota de mercado de un solo banco. La eficiencia de los costes no tiene ningún efecto sobre la cuota de mercado de los bancos en el periodo posterior al lanzamiento del neobanking.

**Investigación, implicaciones prácticas y sociales:** El estudio tiene importantes implicaciones para la gestión de los bancos, ya que los resultados afirman que los cambios estructurales realizados para adoptar la transformación digital por parte de las empresas es la clave para obtener los efectos favorables en términos de aumento de los ingresos, la rentabilidad y la disminución del riesgo de crédito.

**Originalidad/valor:** El neobanking es el disruptor más reciente en el sector de los servicios financieros y el efecto de la digitalización en el sector bancario se está convirtiendo en el foco de la literatura de los bancos comerciales. Este artículo proporciona información sobre las variables específicas de los bancos que afectan a los resultados financieros tras su transformación digital**.**

**Palabras clave:** Neobanking, Bancos tradicionales, Cuota de mercado, NPL, NIM, ROE.

## INTRODUCTION

Technological innovation has significantly shaped the banking sector around the world. Financial service providers are increasingly adopting digital transformation in an attempt to lower costs and to gain remote access of customers. Digital transformation of banking services has witnessed a strong upward trajectory since 2017 in an effort to increase their penetration and market share in the banking sector by utilizing Fintech and innovation to create products that consumers favour over the traditional banking products (Bradford, 2020).

Neobanking is a recent innovation in the Fintech space that has disrupted the financial services sector. Neobanks are Fintech companies that offer non-traditional banking services like financial advisory robots, digital money, cryptocurrency transactions, crowdfunding platforms and a huge array of modern tools for financial analytics. Such service providers typically operate from an app rather than a physical branch or office and, therefore, have fewer employees. Many neobanks also operate without a full banking license, by procuring a license for individual financial services and operating through a partnership with traditional banks (Naser, 2019).

Simple and Moven were among the first neobanks, launched in the United States in 2009 and 2011, respectively. By December 2020, there were 256 neobanks around the globe (Stagmeier and Friedental, 2020), dominated by the US market followed by the United Kingdom. Neobanks such as Branch, MoneyLion, Motiv Money, and MyBambu target customers without bank accounts and provide them with debit cards and short-term advances whereas others like BankMobile, Dave, Digit, Chime, Current, GoBank, MoneyLion, SoFi Money, and Varo target students by offering student loans and tools to manage saving-investment behavior (Bradford, 2020). The most well-known Neo banks in the UK include Atom, Monzo and Revolut, having around 1.5 million customers (Shettar, 2020). A 2022 survey conducted by Finder.com revealed that 8 percent of the US adults had a neobank account, which is expected to reach 11 percent by 2023 and 15 percent by 2027 (Wells-Barrett, 2022).

In 2017, the Dubai Financial Services Authority (DFSA) in UAE rolled out digital banking licenses to non-bank financial digital service companies followed by Abu Dhabi Global Market (ADGM) in 2019, allowing these companies to provide banking services. One of the applicants for these licenses includes traditional banks that wish to develop their digital arm alongside their other banking services. In 2020, Central Bank of UAE (CBUAE) established a dedicated Fintech office, to cater to the rising demand for digital and neobanking. The new policy development is the motivation for this research that analyses the effect of neobanking by traditional UAE banks on its market share.

Neobanks have proved to be a boon during the global COVID-19 pandemic when Fintech companies rapidly increased their market share, since they were not burdened with capital costs (Koibichuk et al., 2021). In fact, many traditional banks were spurred to adopt modern financial technology as the lockdown accelerated remote work culture and forced traditional banks to adopt digital transformation. The Middle Eastern region also witnessed the rise in neobanks, particularly in the United Arab Emirates (UAE), Saudi Arabia, Bahrain, Iran, Turkey and Israel.

Banks in the UAE launched their neobanking operations either via 'Banking as a Service' (BaaS) platform or direct-to-bank integration, in an effort to improve their presence, especially targeted at digitally-savvy and younger users. Emirates NBD introduced its first neobank called LIV and Mashreq launched Mashreq Neo, both in 2017, followed by Abu Dhabi Islamic Bank (ADIB) launching MoneySmart in 2018. In 2020, Abu Dhabi Commercial Bank launched Hayyak and in 2021, YAP partnered with RAK Bank to offer spending and budgeting analytics, remittances services and bill payments.

On the demand side, the Covid-19 acted as an accelerator to digitization, as consumers were forced to adopt the digital readiness in their mindset. According to Finders.com, majority of countries showed an increase in the number of digital account holders after the Covid-19 outbreak, with Brazil witnessing an 11 percentage point increase while neobanks account holders in the UAE had grown from 17 to 19 percent during 2021-22. The UAE Fintech Report 2021 shows that consumers in the UAE are shifting away from cash to contactless payments, especially following the COVID-19 pandemic whereby 73% of the consumers said that they resorted more to online shopping following the lockdown and 83% wanted to continue using contactless payments even in the post-pandemic era.

Neobanks in the UAE have been launched by incumbent banks as standalone digital operations and they provide a complete range of financial products along with their traditional banking offerings. The current framework for Fintech licenses in the UAE require companies to partner with a bank, which has to own 51% of the venture.

Mashreq Bank is one of the oldest banks in the Gulf region, having established in 1967. The bank has been investing heavily in digital initiatives, and was the first in the region to introduce a blockchain-based data-sharing platform for its entire know-your-customer procedure. It was also the first bank to launch a digital-only SME bank account. Mashreq Bank deployed robotics for automating many of its operating procedures and forged alliances with Fintech companies to manage payments, wealth management, credit underwriting and customer authentication services. Mashreq launched Mashreq Neo in 2017, which is completely branchless whereby customers are enabled to carry out all banking services via online and mobile platforms. Neo mobile banking app, Neo Online, and the Neo Chatbot are also integrated with Facebook Messenger. Mashreq Neo aims to leverage big data analytics to offer unique insights to its customers on financial management. The Mashreq digital banking platform, NEOBiz, helps startups and SMEs to open digital accounts through online and mobile banking with a virtual relationship manager. The bank has collaborated with Emirates Digital Wallet to launch a digital cash platform, 'klip', to drive contactless and cashless transactions.

In 2017 Emirates NBD launched its neobanking called 'Liv' targeted at millennials followed by the 'E20' in 2019 as a digital mobile-only business bank for SMEs and entrepreneurs. It was a deliberate decision to make Liv and E20 separate brands from the ENBD, in order to provide a wider user experience than traditional banking. The neobanking platforms accommodate the younger generations and Liv had over 300,000 clients in 2021. ENBD harnessed AI and Big Data to better understand customer behavior and to provide tailored experience and to make ENBD one of the world's most innovative banks.

Abu Dhabi Islamic Bank (ADIB) partnered with Fidor Bank from Europe to launch a community-based digital bank in 2018 called MoneySmart. It is a dedicated satellite brand of ADIB, that is targeted exclusively at the Generation Y market, through mobile, web and social media. MoneySmart is an inclusive digital banking ecosystem with tailored products available exclusively online, offering a digital bank account with an app and a free debit card. It has been described as Middle East's first digital community for personal finance, where people can exchange information and advice with peers and experts. In fact, this interactive platform even gives rewards to users with cashable bonus points for participating in the MoneySmart community, by being an active member or by referring friends.

According to Statista.com, the transaction value in the UAE neobanking segment has been estimated at US$ 334.40 million with the average transaction value per user in the neobanking segment at US $23.20 thousand in 2022.The projection till 2027 show an annual growth rate of 23.88 percent which is expected to result in transactions worth US$ 975.70 million by 2027 (Table 2).

Neobanks have brought about a revolution in the retail banking services to consumers (Paliwal, 2021) around the globe and has been changing the landscape of the financial services sector in the UAE. The financial sector has been undergoing major transformations due to technological developments and innovations in terms of their operating efficiency, client acquisition, data processing and organizational structure. Consequently, established banks in the UAE have launched neobanking operations to supplement their traditional banking operations, in an effort to enhance their digital presence and to increase their market share.

In this study, we examine the influence of financial performance indicators on market share of those incumbent banks in UAE that have adopted neobanking and have spearheaded the digital revolution. To knowledge of the authors, extant studies have not yet explored the impact of neobanking on the performance of UAE banks. The research, therefore, makes a significant contribution by exploring a recent digital phenomenon in the financial sector research and adds to the literature on the UAE banking sector. Our results also have important policy implications and lessons to be learnt from those banks that have successfully implemented virtual platforms.

The format of the paper includes a background of the adoption of neobanking in the UAE in Section 2 followed by the research methodology in Section 3. Section 4 presents the findings while Section 5 discusses the results. Section 6 concludes the paper.

The Arab Monetary Fund launched the Index of Modern Financial Technologies in the Arab countries called the FinxAr which captures Fintech adoption in the Arab countries during the period 2018-2020. Table 1 shows that the UAE leads the Arab countries in the General Index, achieving an average of 75%. Regulators in the UAE have been keen to align the digital agenda with the banking industry, with the Central Bank of UAE establishing its Fintech office in 2020. The banks are also streamlining operations to cater to the rising demand for digitization by transforming their business strategies.

Table 1- Index of Modern Financial Technologies in the Arab countries (2018-2020)

| **Countries** | **FinxAr Index (out of 100)** |
|---|---|
| UAE | 75% |
| Saudi Arabia | 65% |
| Bahrain | 64% |
| Tunisia | 55% |
| Egypt | 52% |

Source: fintechnews.ae

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Table 2: Neobanking in the UAE

| Year | Transaction Value (US $ million) | Average Transaction per user (US $ thousand) |
|---|---|---|
| 2017 | 15.21 | 11.66 |
| 2018 | 32.43 | 13.97 |
| 2019 | 65.91 | 16.28 |
| 2020 | 126.40 | 18.59 |
| 2021 | 220.80 | 20.90 |
| 2022 | 334.40 | 23.20 |

Source: Statista.com

Neobanks, therefore, are becoming a popular option amongst individuals looking for easily accessible user-friendly and quick banking services via the internet. Since the UAE is characterized by a tech-savvy population, neobanks are gathering momentum. The neobanks do not require a physical space or branches, which has helped them cut costs at a significant rate. However, the launch of neobanks have involved considerable sunk costs along with operational expenses to boost customer service and to market their products. The neobanks have typically imposed fewer fees on their clients and offered better interest rates for easy loans, which have added to their cost-income ratios. The popularity of the neobanks has proved to be a threat for traditional banks in the UAE as indicated in Table 2. This is because of a switch in banking transactions of users in favour of the virtual banking operations.

With this backdrop, we look into the performance of the incumbent banks in the UAE that have launched neobanking operations and seek to investigate whether there has been any structural break in their market share due to this digital transformation. We analyse the effect of neobanking and bank specific factors on the market share. The effect of monetary policy as an external factor is also included in the study.

## LITERATURE REVIEW

Studies on impact of digital banking services on performance of commercial banks have confirmed an increase in ROA (Wadesango and Magaya, 2020) while the impact of digital transformation on bank size was explored by Do et al., (2022). Studies by the National Bureau of Economics Research, USA, have found that productivity for financial services firms improves after adopting digital technologies improvements (Philippon, 2016).

Digital transformation, in terms of capital and development level of science and technology, has been shown to have a positive effect on performance of Vietnamese commercial banks and the impact was greater for larger commercial banks (Do et al., 2022). This was confirmed by Gupta et al., (2020) who showed that digitalization leads to better performance as it can increase productivity and decrease costs. Agboola et al. (2019) emphasized on the adequate implementation of digitalization in commercial banks for positive effects on bank performance in Nigeria. Contrary to these results, Beccalli (2007) found no significant relationship between digital transformation and bank performance for European banks during 1995- 2000. Xin and Choudhary (2018) opined that despite huge investments in information technology, businesses including banks were failing in their implementation projects and were not resulting in higher profit.

Market share of 30 foreign and domestic commercial banks in Turkey was studied by Amasyali et al. (2014) by considering bank specific factors like capital adequacy, profitability, liquidity and asset quality ratios.Vives (2020) opined that new entrants adopting digital disruption and Fintech are expected to gain market share as a consequence of efficiency gains. The author also observed that digital disruption provided firms with opportunity for improving efficiency with innovation but margins of the incumbents may come under pressure because of the disruption and may push them to increase risk taking. Therefore, restructuring is a necessity along with digital transformation, especially in Fintech, with entry of new competitors in the digital space. Use of advanced technologies and improved services provide opportunity for banks to increase their market share (Amasyali et al., 2014). Market share has been associated with market power of firms and increase in bank performance (Khan and Hanif, 2019; Sahile et al., 2015). Past studies have reported a positive association between market share and bank profitability. (Abbas and Arizah, 2019; Mirzae et al., 2013).

Bernanke and Blinder (2007) stated that the short term interest rate determined by the Central bank affects the long term interest rates, treasury bill rate, interbank rate and eventually the lending rate. Consequently, Mbabazize et al., (2020) found a significant and positive relationship between the level of short term market rates and ROA for banks in Rwanda. Similar results were supported by Udeh (2015) for banks in Nigeria and well as Borio et al., (2015) for the European banks.

Arif and Rehmawati (2018) studied the effect of interest rate on market share of Vietnamese banks and reported negative influence of interest rate on the market share of Islamic banks. Flannery (1981) studied the effect of Treasury bill rate on fifteen U.S. banks from 1959 to 1978 and reported mixed results, whereby there was no significant effect on net profits for thirteen banks and a positive effect on the remaining banks.

It is evident from the review of the past literature that there have been very limited studies on the effect of digital transformation on banks and the results have been contradictory across countries. Further, the recent trend of neobanking and its impact on bank performance has not yet been explored. This study, therefore, makes a significant contribution to the existing research by attempting to study the effect of adoption of neobanking model on the market share of UAE banks.

## DATA AND METHODOLOGY

This research is based on quarterly time series data of three selected banks in UAE that have adopted neobanking for the period 2012 to 2021, namely Mashreq Bank, Emirates NBD and Abu Dhabi Islamic Bank. Secondary data was collected from the quarterly financial reports, financial statements and investor presentations of these banks, which were procured from the websites of the individual banks and from CBUAE annual reports.

### Independent variables

The description of the variables and their measures are provided in Table 3.

Table 3: Description of the variables

| Variables | Definitions | Measure |
|---|---|---|
| MKT | Market Share | Bank specific assets divided by sectoral assets of all banks in UAE |
| NPL | Non-Performing Loans | Credit risk of Banks |
| CI | Cost-to-Income ratio | Cost Efficiency of Banks |
| NIM | Net Interest Margin | Profitability Measure based on interest earnings of individual banks |
| ROE | Return on Equity | Profitability Measure based on shareholder capital of each bank |
| INT | Interest Rate | 3-month Emirates Inter-bank Offered Rate |
| NEO | Dummy Variable for adoption of neobanking | = 0 before the bank adopted neobanking<br>=1 after the bank adopted neobanking |

**Dependent variable**

We pose market share as the dependent variable and the measur used is based on Herfindahal-Hirschman Index (HHI) as used by other studies on bank performance (Amasyali et al., 2014; Rettab et al., 2010).

The formula is:

Market share = Total assets of individual bank/Total assets in the banking system

The impact of financial performance variables on market share has been examined by using the Structural Break model to determine the influence, if any, before and after the adoption of neobanking. If there is no structural break, coefficients would remain the same across the entire sample and within the sub-samples.

When we have a single regression line for each bank, the overall market share can be expressed as:

$$y_{it} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 z_t + u_{it} \qquad \ldots\text{(i)}$$

Where yit is the market share of bank 'i' in time 't'; xt represents all bank-specific variables that would have influenced the market share of the bank 'i' in time 't'; zt includes the macroeconomic variable (interest rate) over the specific time period; uit captures the error term. When we consider the structural break, the function would be expressed as separate equations segregated at the point of the known break, as follows:

$$\begin{aligned} y_{1t} &= \beta_{11} + \beta_{12} x_{1t} + \beta_{13} z_{1t} + u_{1t} \\ y_{2t} &= \delta_{21} + \delta_{22} x_{2t} + \delta_{23} z_{2t} + u_{2t} \end{aligned} \qquad \ldots\text{(ii)}$$

The Wald test was adopted to test the significance in the difference between the parameters in equation (ii), based on the Chi-squared critical values. The adoption of neobanking was taken as the point of the known break in the model for adoption of the Wald test. Mashreq and ENBD implemented neobanking from 2017 Q1 while ADIB started a year later, from 2018 Q1. The Wald test was applied in accordance with the neobanking adoption dates of the individual banks for the known structural break in the models. Once the break was identified for each individual bank that had adopted neobanking, the dummy variable (NEO) was applied to the function, to include intercept dummy as well as slope dummies, in order to identify the effect of adoption of neobanking on the market share of each bank as follows:

Model 1 with no Structural Break:

$$Mkt_{it} = \alpha_{0t} + \alpha_{1t}.NPL + \alpha_{2t}.CI + \alpha_{3t}.\ NIM + \alpha_{4t}.\ ROE + \alpha_{5t}.\ INT + u_{it} \qquad ...(iii)$$

Model 2 with Intercept Dummy:

$$Mkt_{it} = \beta_{0t} + \beta_{1t}.NPL + \beta_{2t}.CI + \beta_{3t}.\ NIM + \beta_{4t}.\ ROE + \beta_{5t}.\ INT + \beta_{6t}.\ NEO + v_{it} ...(iv)$$

Model 3 with Intercept and Slope Dummy:

$$Mkt_{it} = \gamma_{0t} + \gamma_{1t}.NPL + \gamma_{2t}.CI + \gamma_{3t}.NIM + \gamma_{4t}.ROE + \gamma_{5t}.INT + \gamma_{6t}.NEO + \gamma_{7t}.NEO*NPL + \gamma_{8t}.NEO*CI + \gamma_{9t}.NEO*NIM + \gamma_{10t}.NEO*ROE + \gamma_{11t}.NEO*INT + \varepsilon_{it} \qquad ...(v)$$

Diagnostic tests indicated that the independent variables did not have any anomaly of multicollinearity. The issue of heteroscedasticity was tackled by generating robust standard errors for the regressions.

## RESULTS AND DISCUSSION

The findings of our analysis is presented bank-wise as the mostly the results are not uniform across the banks.

## MASHREQ BANK

Mashreq Bank implemented neobanking in the first quarter of 2017 and, therefore, the Wald test for structural break for Mashreq Bank was carried out taking the known break at 2017Q1. The chi-squared critical value rejects the null hypothesis of no structural break and, therefore, the dummy variable NEO was applied in Models 2 and 3 to investigate the effect on adoption of neobanking by Mashreq Bank.

Table 4 shows that the intercept dummy was not significant but there were notable effects of neobanking on the market share when we looked into the slope dummies. Non-performing loans (NPL) had significant negative effects before the adoption of neobanking but it turned positive significant after implementation of neobanking which is a very important result. The ROE had also deteriorated with their digital transformation while the effect of interest rate did not change after the adoption of neobanking.

Table 4: Mashreq Bank where NEO = 1 after 2017q1; = 0 otherwise

| | Model 1 Without Dummy | Model 2 With Intercept Dummy | Model 3 With Intercept and Slope Dummy |
|---|---|---|---|
| NPL | ***-.1182504****** ***(.0097317)*** | ***-.1123627****** ***(.0138808)*** | ***-.1039622****** ***(.0164584)*** |
| CI | ***-.0100533 ****** ***(.0032821)*** | ***-.0093941****** ***(.0030698)*** | -.0114932 (.0090041) |
| NIM | ***-.5029194****** ***(.1146352)*** | ***-.4694859****** ***(.138037)*** | -.1864464 (.180055) |
| ROE | -.0054587 (.0139227) | -.0035847 (.0130874) | .0431678 (.0239671) |
| INT | .0601291 (.0411507) | .0393427 (.0549388) | **.5170436 **** **(.2191347)** |
| NEO | | .0610748 (.0945432) | -.3943612 (1.272876) |
| NEO*NPL | | | ***.3917523****** ***(.0739004)*** |
| NEO*CI | | | -.0009454 (.0100506) |
| NEO*NIM | | | .0171279 (.2325797) |
| NEO*ROE | | | ***-.0685889 ***** ***(.0316214)*** |
| NEO*INT | | | -.2259179 (.2323816) |
| constant | ***7.271365****** ***(.3537284)*** | ***7.087359****** ***(.4352618)*** | ***5.055859****** ***(1.12862)*** |
| | | | |
| Observations | 40 | 40 | 40 |
| F -statistic | 57.30*** | 50.27*** | 57.29*** |
| R-squared | 0.8410 | 0.8424 | 0.9233 |
| | | | |
| Wald Test | Break date 2017Q1 | chi2(5) =50.84 | Prob > chi2 = 0.0000 |

The dependent variable is Market Share.
Figures in parentheses denote Robust Standard Errors
*** denotes significance at 99 percent confidence level.
** denotes significance at 95 percent confidence level.
* denotes significance at 90 percent confidence level.

## EMIRATES NBD (ENBD)

ENBD launched Liv at the same time as Mashreq and the Wald test for structural break was taken for the known break at 2017Q1. The chi-squared critical value rejects the null hypothesis of no structural break and, the dummy variable was applied as before. We examine the effect of implementation of neo-banking in 2017Q1 and the bank specific regressions for Emirates NBD are reported in Table 5.

In the full model with dummies (Model 3), the coefficient for NEO is insignificant showing no difference indicates that the intercept term remained the same after adoption of neobanking in ENBD. In sharp contrast with Mashreq Bank, NPL had strong negative effect on the market share of the bank after going virtual which indicates that ENBD had showed more prudence in their lending behavior through their neobanking platform.

Another significant finding was that the net interest margin turned significant and positive in the post-digitalization period pushing up the market share of ENBD due to neobanking. This was again contrary to the experience of Mashreq Bank where their profitability measure did not have any effect on their market share either before or after implementation of the virtual platform.

Table 5: ENBD – where NEO = 1 after 2017q1; = 0 otherwise

| | Model 1 Without Dummy | Model 2 With Intercept Dummy | Model 3 With Intercept and Slope Dummy |
|---|---|---|---|
| NPL | ***.5905907**** <br> ***(.0561103)*** | ***-.3200004 **** <br> ***(.1580169)*** | ***-.1391872 **** <br> ***(.0757547)*** |
| CI | -.0502688 <br> (.1005986) | .0190906 <br> (.1030657) | -.0773644 <br> (.0561909) |
| NIM | 1.291056 <br> (1.020149) | ***1.996701***** <br> ***(.9634824)*** | ***-1.35664****** <br> ***(.4144394)*** |
| ROE | ***-.3728505****** <br> ***(.1144426)*** | -.23265 <br> (.1538022) | -.0507526 <br> (.069273) |
| INT | ***.9469629***** <br> ***(.4073326)*** | .2151207 <br> (.4420155) | .6819038 <br> (.4171535) |
| NEO | | ***2.130886 ***** <br> ***(1.020262)*** | -1.052665 <br> (9.115336) |
| NEO*NPL | | | ***-2.937177 **** <br> ***(1.626037)*** |
| NEO*CI | | | .1681448 <br> (.1756803) |
| NEO*NIM | | | ***6.639197 ***** <br> ***(2.553573)*** |
| NEO*ROE | | | .1616462 <br> (.3253048) |
| NEO*INT | | | -3.094973 <br> (2.007726) |
| constant | ***26.42607 ****** <br> ***(5.788768)*** | ***17.53686 ***** <br> ***(7.90587)*** | ***24.12424****** <br> ***(2.920859)*** |
| | | | |
| Observations | 40 | 40 | 40 |
| F -statistic | 32.47*** | 62.71*** | 60.21*** |
| R-squared | 0.6562 | 0.7148 | 0.8095 |
| | | | |
| Wald Test | Break date 2017Q1 | chi2(5) =45.67 | Prob > chi2 = 0.0000 |

Figures in parentheses denote robust Standard Errors
*** denotes significance at 99 percent confidence level
** denotes significance at 95 percent confidence level

## ABU DHABI ISLAMIC BANK (ADIB)

Table 6 reports the bank specific regression models for ADIB, where the implementation of neo-banking occurred in 2018Q1, a year after that of Mashreq and ENBD. The structural break at 2018Q1 has also been confirmed by the Wald Test.

Unlike the earlier banks, ADIB did not experience any effect of NPL on their market share due to adoption of neobanking. However, in terms of their profitability, we find mixed results. The net interest margin worsened whereas their ROE turned positive after ADIB implemented its MoneySmart.

Table 6: ADIB –where NEO = 1 after 2018q1; and = 0 otherwise

| | Model 1 Without Dummy | Model 2 With Intercept Dummy | Model 3 With Intercept and Slope Dummy |
|---|---|---|---|
| NPL | .0197638 (.0581488) | .0305811 (.059007) | .0708945 (.057414) |
| CI | -.0400885 (.0400316) | -.0322027 (.0382367) | .0079992 (.0678454) |
| NIM | ***1.219465*** (.295703)*** | ***.8750991 ** (.3714115)*** | ***1.340404 ** (.5397041)*** |
| ROE | -.0192528 (.0332849) | -.024326 (.0326801) | ***-.176186 ** (.0782093)*** |
| INT | ***-.2431001*** (.0707498)*** | -.0876326 (.1131012) | -.0853015 .1587734) |
| NEO | | .1131012 (.2051406) | 1.370854 (4.421279) |
| NEO*NPL | | | .0964567 (.1123495) |
| NEO*CI | | | .0246023 (.071241) |
| NEO*NIM | | | ***-1.528513** (.5933761)*** |
| NEO*ROE | | | ***.2069458** (.0799771)*** |
| NEO*INT | | | .0645711 (.2077951) |
| constant | 1.81894 (2.394424) | 2.828246 (2.236423) | 1.777092 (4.042031) |
| | | | |
| Observations | 40 | 40 | 40 |
| F -statistic | 11.62*** | 12.21*** | 16.23*** |
| R-squared | 0.5494 | 0.5673 | 0.7475 |
| | | | |
| Wald Test | Break date 2018Q1 | chi2(5) =22.81 | Prob > chi2 = 0.0004 |
| Figures in parentheses denote robust Standard Errors<br>*** denotes significance at 99 percent confidence level<br>** denotes significance at 95 percent confidence level | | | |

The market share of the individual banks were effected due to the adoption of neo-banking. This is consistent with past studies where digital transformation was significant in explaining bank performance (Do et al., 2022; Wadesango and Magaya, 2020; Gupta et al., 2020). Significance of the interest rate also corroborates that monetary policy had an impact of on market share of the banks. Short term interest rate had a positive impact for ENBD and a negative impact on ADIB. In past studies, positive impact of interest rate on bank financial performance has been confirmed (Mbabazize et al., 2020; Udeh, 2015, Borio et al., 2015) while negative impact was reported by Arif and Rehmawati (2018).

Model 1 reveals that the bank specific financial performance variables critical for market share are NPL, ROE and NIM (Tables 4, 5, 6). This has implications for the banks because it will help to focus on improving the credit worthiness, profitability and spread for increasing the market share.

Further, after the structural break when we introduce the neobanking dummy, only ENBD shows a positive effect of the intercept dummy (Model 2) but in Model 3, the effect on market share was seen through the interactive terms with the bank specific variables as the intercept dummy remained insignificant across all the banks.

In terms of the slope dummies, NPL showed a significant effect on the market shares of Mashreq and ENBD bank but interestingly, the signs were different. Positive effect for Mashreq indicates that with the increase in its market share, there was a rise in NPLs and the worsening of its credit quality maybe attributed to the use of virtual platforms to give easy access to quick loans at low interest rates to startups and SMEs in the UAE adversely affecting the quality of the loans. On the other hand, for ENBD the negative impact of NPL on market share indicates an improvement in its credit quality. In the existing studies, there has been contradictory results on relationship between NPL and bank performance. Arif and Rehmawati (2018) confirmed that Islamic banks' market share is affected by its default rate measured by NPL. Al Zaidanin and Al Zaidanin, (2021) have reported a negative effect of NPL on bank profitability whereas a study by Harb et al., (2022) found that accounting performance of banks is not effected by credit risk but it has a non-linear relationship with market performance.

Our results show ambiguous results for profitability measures across the banks. The effect of market share of the banks due to impact on ROE remained unclear as Mashreq showed a negative significant impact implying that although the profitability was falling but the market share was steadily on the rise. For ADIB the effect on market share was positive, as indicated by the interactive slope dummy for ROE. The average ROE of ADIB has declined by 20% from

2018 (4.2%) to 2021(3.3%) with a similar trend in its market share It indicates that with decrease in ROE, market share of the bank also decreased.

Saksonova (2014) argued that net interest margin (NIM) is one of the most important criteria for asset structure optimization and a positive impact of NIM on market share of ENBD implied that the structural changes for efficient adoption of digital transformation had favourable impact on its profitability. However, the negative impact of NIM on market share of ADIB during the study period indicated ADIB's profitability was affected unfavourably after adoption of neobanking. Higher non-interest earning assets and greater reliance on deposits for funding have been found as less profitable due to high branching expenses that maybe required on deposits (Demirguc-Kunt and Huizinga, 1999). Further, cost Efficiency of the banks, measured by the cost-income ratio, had no effect on market share across all banks. There are various frictions associated with new technologies that may delay or limit the benefits of digital transformation (Bresnahan et al., 1996).

## CONCLUSION

The banking industry around the globe has been faced with a major disruption, utilizing technological advances. Neobanks have emerged as a strong threat to traditional banks as they operate fully online and exclude the need for delivery of financial services through any physical presence and bank branches. Neobanks have penetrated deep into the financial services sector due to their low operating costs through virtual platforms which enables them to swiftly adapt to changing customer preferences and to offer highly personalized services.

The global experience suggests that the neobanks so far have been successful when backed by the support and resources of the established traditional banks, as has been the case in the UAE, whereby the Fintech company would have access to the banking services provided by official banking license (Okunevych and Hlivecka, 2018). Given the increasing scale of operations of neobanks, market regulators and stakeholders need to pay attention and develop specific regulations in favour of such innovative companies to avoid any lack of transparency (Folwarski, 2020). In the UAE, the well-established traditional banks have adopted virtual neobanking banking platforms, to offer flexible and innovative financial services in an efficient manner. So, new banking business models have emerged within the traditional banks in the UAE that are expected to strengthen those banks that have been the leaders in the Fintech arena by consolidating their market shares.

Our results indicate that neobanking has influenced the bank specific factors which had significant effect on market shares of the UAE banks that have adopted the virtual banking route. However, the impact of impact of neobanking on the operations of these banks have not been uniform during the period under study since the changes in performance emanating from digital technology adoption may not be observed in the short run (Brynjolfsson et al., 2018), but the low-cost operations will have a significant influence on the banking services of neobanks within the near future. Following the footsteps of the most innovative Neobanks will provide a blueprint for disruptive new revenue models in digital banking for the new entrants in the coming years.

The findings have important policy implications. On one hand, banks, both traditional and virtual, are driven by their key objective of lowering their bad debts and maximizing profits. On the other hand, neobanking came into effect with the primary offering of quick easy loans for the young generation and new start-up companies who find it difficult to approach traditional banks for their financial needs. Our results highlight the importance of understanding the creditworthiness of the clients so that the quality of loans and the profit margins of the companies are improved after their digital transformation. We find that Fintech strategies adopted by the virtual operations of ENBD has led to encouraging results which should be emulated by the other incumbent banks as only ENBD was able to reduce NPL and improve NIM through their neobanking platform, by taking advantage of the contactless drive during the Covid-19 pandemic. In complete contrast, the management of Mashreq may need to exercise some caution while doling out the loans because the credit risk went up for Mashreq bank following their implementation of neobanking services.

There have been limited studies on digital transformation of banks and the results have been contradictory across countries. Moreover, the present study is the first to examine the implementation of neobanking on market share of banks in UAE. Therefore, this paper makes a significant contribution to the research on digitalization in the financial sector along with adding to the literature on the UAE banking sector. Our results have important lessons to be learnt from the banks that have successfully implemented the virtual platforms. With the growing adoption of neobanking and the projected advancement of the sector, the present study lays the foundation of much wider scale and scope of future research.

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