



The role of *Qardul-Hasan* in enhancing financial inclusion: A case study of Al-Akhuwat

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Abstract

This research is aimed at assessing the role of *Qardul-Hasan* in enhancing financial inclusion; a case study of Akhuwat, Pakistan. Survey research design was used and primary data was obtained using structured questionnaire. The study adopted the purposive and clustered sampling technique with 380 sample size in an attempt to achieve the study objectives. Out of the 380 questionnaires distributed, 300 were returned which is about 78%. The data was analyzed using descriptive (mean, standard deviation, as well as, the minimum and maximum values) and inferential statistics (using Structural Equation Model (SEM)). The result obtained showed that Akhuwat *Qardul-Hasan* has a significant role in enhancing financial inclusion of the beneficiaries in Pakistan. Finally, the study recommends that the Pakistan government should focus in making Government-to-Person (G2P) social cash transfer payments into the formal account of poor people, young people, women, and elderly people as this may encourage other poor people, young people, women, and elderly people to join the formal financial sector to own a formal account to take advantage of the G2P social cash transfer benefits, thereby, increasing the rate of financial inclusion for vulnerable groups.

Keywords: *Qardul-Hasan*, financial inclusion, Akhuwat

Introduction

Poverty has become a global menace (Abrol & Kaur, 2018) ^[16]. The rate of global poverty is very high in Muslim communities; over half a billion individuals live on under 2 US Dollar per day in Indonesia, India, Pakistan, Bangladesh, Egypt, and Nigeria alone, many of whom struggle to access sufficient liquidity, manage savings, and transfer and receive money (Demirgüç-Kunt, Klapper, Singer, & Ansar, 2022) ^[25]. Islamic microfinance is often described as a valuable tool for development and poverty alleviation (Redzuan, Kassim, Rosman, Muhammad Zuki, & Shaharuddin, 2023) ^[11]. Park and Mercado (2015) ^[46] emphasize that financial inclusion is significant because it is a key requirement for sustaining equitable growth due to the fact that it provides the poor with opportunities to build savings, make investments, and understand uses of credit, more importantly, access to financial services help the poor to insure themselves against income shocks and equips them to meet emergencies such as illness, death in the family, or loss of employment. The focus of financial inclusion is basically on the poor, unbanked, and rural populations with the aim to reduce poverty and lower income inequality (Wanof, 2023) ^[13].

The role of financial inclusion in the economic and financial discourse has gained a lot of interest both among the academia and practitioners. At the Group 20 leaders (G20) Summit in Seoul in 2010, financial inclusion, which is the use of formal financial services, has been recognized as one of the main pillars of the global development agenda. At the inception of this millennium, the world has unanimously agreed upon fighting against poverty as was reflected in United Nations (UN) Millennium Declaration 2000.

A target of universal financial access by 2020 has been announced by the World Bank (Naceur, Barajas & Massara, 2015) ^[20]. In this context, financial inclusion has been identified as one of the most efficient and effective channels towards poverty alleviation, which ensures a widespread participation in the development process.

Financial inclusion implies the provision of adequate and affordable financial services to all segments of the society that are un-served or underserved by formal financial system irrespective of whether the group is excluded voluntarily or involuntarily (Asuming, 2019) ^[21]. Although, level of access to finance is an earnest issue for all developing countries, the situation is more severe for Muslim countries (Abrol & Kaur, 2018). As at 2011, it is estimated that more than fifty percent (50%) of world's adult population or 2.5 billion adults do not have access to formal financial institutions and majority of them reside in emerging market and developing economies (EMDEs) but, the situation is gloomier for member countries of Organization of Islamic Conference (OIC) with about seventy five percent (75%) or 1 billion adults among self-identified Muslims do not have an account in a formal financial institution, however, as at 2021, financial inclusion rate has improved and clocked seventy six (76%) of the global population (Global Financial Index, 2022).

The Group 20 (G20) leaders were committed to improving access to financial services for the poor at the Pittsburgh summit in September 2009, and set-up a Financial Inclusion Experts Group with World Bank Group support. The G20 Leadership Summit in Toronto in June 2010 endorsed the "Principles for Innovative Financial Inclusion" that the Group developed at the Pittsburgh summit. The UN committee on building inclusive financial sectors encouraged central banks and governments in 2006 to add the goal of universal financial inclusion to the traditional goals of prudential regulation and financial system stability, in that respect, universal access to finance has been adopted as a goal by India, Pakistan, South Africa, Mexico, Brazil, Colombia, Malaysia and a number of European countries (Pearce, 2010) ^[65].

Promoting financial inclusion in Pakistan is crucial, as South Asia, a region encompassing a population exceeding 1.9 billion people, wrestles with the challenge of excluding a significant portion of its population from financial services. According to the Global Findex (2021) database, the financial inclusion rate in the region is at 68 percent, which falls short of the 71 percent average seen in developing economies (Ozili, 2023). Worryingly, the percentage of adults in Pakistan with financial accounts has seen little change since 2017 (Financial Inclusion Insights Survey, 2020). However, the increasing ubiquity of mobile phones in Pakistan presents a distinctive opportunity to bolster the ownership of financial accounts through mobile payment solutions. As highlighted by the Global Findex, over half of the 430 million adults in the region without financial accounts possess a mobile phone, making it a strategic avenue for enhancing financial inclusion in Pakistan (Ozili, 2023).

Literally, the financial inclusion of an economy is measured by the proportion of population covered by mainstream bank branches and Automated Teller Machines (ATMs), sizes of deposits (savings), insurance, and loans made by low-income households and Small and Medium Enterprises (SMEs). Many reasons may involuntarily result to financial exclusion of certain portion of the population such as insufficient income, discrimination, contractual framework, product

features or location. However, availability of financial services may not equal financial inclusion, because people may voluntarily exclude themselves from the financial services for religious or cultural reasons, even though they do have access and can afford the services which may account for the higher exclusion rate of the Muslim community (Allen, Demircuc-Kunt, Klapper and Peria (2016). It has been claimed that in OIC countries, 51 million men and women have no bank account in formal financial institutions (Demircuc-Kunt & Klapper, 2012). Records indicate that as at 2020, only 64% of Nigeria's adult population were financially included while 36% of Nigeria's adults, or 38 million adults, remain completely financially excluded (Enhancing Financial Innovation & Access (EFInA), 2021). Abrol and Kaur (2018) ^[19] discussed the critical determinants of financial inclusion, shedding light on key factors that influence individuals' access to financial services. These determinants include the availability of bank credit, the quality of bank services, the level of financial access in a given area, individuals' income levels, their savings habits, and the availability of insurance options. Furthermore, their study recognized the importance of the utilization of financial services and the role of agency banking in promoting financial inclusion. Similarly, Amidžić, Massara, and Mialou (2014) ^[44] presented a comprehensive financial inclusion indicator. This indicator encapsulated various dimensions of financial inclusion, notably its outreach, encompassing the geographic and demographic reach of financial services. It also took into account usage metrics, encompassing deposit and lending activities. Additionally, the indicator considered the quality of financial inclusion, which involved aspects such as disclosure requirements, mechanisms for dispute resolution, and the cost associated with using financial services.

In essence, what unifies these definitions of financial inclusion is their shared emphasis on ensuring that every member of society has equitable access to the available financial services. Furthermore, these definitions underscore the crucial role of promoting account ownership and nurturing a habit of regular savings among individuals. It's not only about providing access to financial accounts but also about encouraging and facilitating a culture of prudent financial management and savings practices in communities and societies. This dual focus on account ownership and savings habits is essential for fostering genuine financial inclusion and empowering individuals to build a secure financial future.

Takaful, despite its immense potential for enhancing financial inclusion and poverty reduction, remains significantly underdeveloped in OIC countries. A study conducted by the United Nations Development Programme (UNDP) in 2006 shed light on the fact that low-income individuals in Indonesia continue to heavily rely on informal risk management strategies (UNDP, 2006). Likewise, when we turn our attention to small and medium-sized enterprises (SMEs), we find that they are also inadequately covered by insurance services in economically disadvantaged OIC countries. For instance, in the Middle East and North Africa (MENA) region, while 61% of SMEs in Gulf Cooperation Council (GCC) countries have access to insurance services, this percentage drops significantly to 25% when considering SMEs in Non-GCC countries within the same region (Middle East Update, 2019). This underscores the urgent need to prioritize and expand Takaful services to bridge these gaps in

financial security and risk management.

The central focus of Islamic economic system is on economic and social justice and towards improving overall well-being of the society though this does not disallow individual's own pursuit of personal interest within the ambit of morals and wider interest of the society (Nugraha, Al Hakim, Jubaedah, Julian & Athoillah, 2023) ^[61]. The Islamic social financial system comprises of institutions and instruments that work on principles of social justice, risk-sharing, and mutual co-operation. In effect, such a system minimizes the risk of unsustainability and ineffectiveness of targeted programs in improving overall welfare of the society (Haq & Shafiq, 2015) ^[63]. *Zakah, sadaqah, waqf* and *qardul-hasan* are time-tested instruments of Islamic economics for distribution and redistribution of wealth and, if effectively used, can play a key role towards financial inclusion and sustainable development process (Zulkhibri, 2015) ^[6].

Qardul-hasan based lending has been practiced throughout the Muslim communities and it has been an established practice, however, formal use of *qardul-hasan* as a tool for microfinance and financial inclusion is relatively recent (Zulkhibri, 2015) ^[3]. There are several countries including Bosnia Herzegovina, Islamic Republic of Iran, Indonesia, Pakistan, and UK where *qardul-hasan* is being used for extending microfinance (Mushkalamzai, Hanif, & Aziz, 2023) ^[63]. In case of Islamic republic of Iran, large numbers of formal and informal funds have been established in mosques, organizations, and rural communities. In addition, practice of establishing such funds among families and peer groups is widespread (Mirakhor, 2004) ^[19].

Akhuwat, the pioneer Islamic microfinance institution in Pakistan, has successfully demonstrated the utility of the product of *qardul-hasan* that is a loan extended without interest or any other benefits from the borrower. The lender expects a reward only from Allah that is, it is based on the concept of "solidarity" or "fraternity", the organization is playing an instrumental role in redistribution of resources, and has also been able to run it on sustainable basis (Iqbal & Mirakhor, 2013) ^[70]. This model while establishing the viability of Islamic microfinance highlighted the significance of community-based organizations. The model of AKHUWAT signifies that every community needs a customized version of programs for poverty reduction and alleviation that is consistent with the prevailing culture and norms because customization of program has been identified even by the World Bank as one of necessary conditions for poverty reduction (Haq and Shafiq, 2015) ^[52]. In the light of the above, the significance of this research cannot be overemphasized because it will examine the role of *qardul-hasan* in enhancing financial inclusion; a case study of *Akhuwat*.

Poverty has emerged as a widespread issue on a global scale, with approximately half of the world's poorest populations residing in Muslim-majority regions (Owais, & Ali, 2023) ^[100]. Within Muslim communities alone, one out of every five individuals live in poverty. In specific countries like Indonesia, India, Pakistan, Bangladesh, Egypt, and Nigeria, more than half a billion people survive on less than \$2 a day. These individuals often face challenges in accessing financial resources, managing savings, and conducting basic financial transactions (World Poverty Fact, 2021) ^[101]. Undoubtedly, addressing poverty has become a global concern of utmost importance. Islamic economics offers established mechanisms such as *Zakah, sadaqah, waqf*, and *qardul-hasan*,

which have been historically proven as effective tools for wealth distribution and redistribution. If utilized effectively, these instruments can play a pivotal role in alleviating poverty and promoting sustainable development (Mirakhor, 2014)."

The lack of access to financial services continues to pose a significant challenge for individuals with limited resources who aspire to engage in productive or business endeavors. While the issue of access to finance is a pressing concern for all developing nations, it is particularly acute in Muslim-majority countries (Abrol & Kaur, 2018). Alarmingly, more than two-thirds of financially excluded adults belong to Muslim communities in regions such as South Asia, the Pacific, and sub-Saharan Africa. This exclusion is primarily driven by religious beliefs, as Islam strictly prohibits interest (*riba*), which is prevalent in conventional financial institutions (World Bank, 2020).

Despite Pakistan's sustained efforts to promote financial inclusion, including the adoption of a national financial inclusion strategy in 2015, it is disconcerting to note that, according to the World Bank's estimates, Pakistan ranks among the lowest globally in terms of financial inclusion (Accelerating Financial Inclusion, 2022). The Financial Inclusion Insights (FII) Survey in 2020 reported a meager 21% topline financial inclusion rate for Pakistan. Additionally, a report by the International Fund for Agricultural Development in 2016 highlighted that access to formal financial services in Pakistan stood at a mere 20%, significantly lagging behind neighboring countries like Bangladesh (34%) and India (67%). The situation is even more dire for women, with only 11% having access to financial services. As a result, an overwhelming majority of Pakistan's population remains financially marginalized. This underscores the critical need for research in this area. Addressing the issue of financial exclusion, particularly in the context of Islamic finance principles and the unique challenges faced by Muslim-majority countries, is imperative. Conducting in-depth research can shed light on potential solutions and strategies to enhance financial inclusion and empower disadvantaged communities, ultimately fostering economic growth and development.

Extending the discussion to the context of *Akhuwat* Microfinance and its *Micro-Takaful* scheme, there is a compelling rationale for conducting research on the synergy between *Akhuwat's* micro-credit and *Micro-Takaful* offerings, with a primary focus on their combined role in fostering financial inclusion in Pakistan. While the existing literatures (such as Alhammadi, 2023; Ozili, 2023; Masood, Maitlo, Shaukat, & Gul, 2023) ^[16, 85, 80] highlighted the significance of *Takaful* in enhancing financial inclusion and acknowledges *Akhuwat's* pioneering efforts in interest-free microfinance, a dedicated investigation into the integration of *Micro-Takaful* within *Akhuwat's* micro-credit framework is warranted. This research can unveil the untapped potential of *Akhuwat's* holistic financial services approach, wherein *Micro-Takaful* complements micro-credit offerings, mitigating risks and vulnerabilities among marginalized communities.

Access to formal banking services, the practice of saving, and having insurance coverage have consistently emerged as significant factors influencing financial inclusion. For instance, Soumar, Tchana, and Kengne (2016) ^[30] conducted a study on the determinants of inclusive finance in Central and West Africa, analyzing data from 18 countries sourced

from the World Bank Global Financial Inclusion (Global Findex) database. Their research highlighted ownership of bank accounts, savings habits, and participation in insurance programs as the primary determinants of financial inclusion. Furthermore, Abrol and Kaur (2018) ^[90] emphasize that financial inclusion is influenced by a broader range of factors, including access to bank credit, the quality of bank services, overall financial accessibility, income levels, savings behavior, access to health insurance, utilization of financial services, and the availability of agency banking.

These findings underscore the multifaceted nature of financial inclusion, where not only having a bank account but also engaging in prudent financial practices, accessing a variety of financial services, and safeguarding against risks through insurance play pivotal roles. Understanding and addressing these determinants are crucial for policymakers and financial institutions aiming to promote greater financial inclusion and economic empowerment among diverse populations. This research provides valuable insights into the factors that can be targeted to enhance financial inclusion efforts.

Numerous research studies have explored the effects of microfinance on the well-being of its recipients. For instance, Mahmood, Fatima, Khan, and Qamar (2015) conducted a study to assess the influence of Islamic Microfinance (IMF) on the assets and poverty status of households that had borrowed from three pioneering organizations: Akhuwat Foundation, Farz Foundation, and NAYMAT, all located in Lahore, Pakistan. Their findings indicated positive impacts of Islamic microfinance on the economic conditions of impoverished individuals. The research also recommended the need for further studies to specifically examine how Islamic Microfinance contributes to the advancement of Financial Inclusion.

Likewise, Muhammad, Kassim, Mahadi and Ali (2023), Nawai, Dali and Mutalib (2023), Abdul Razak, Muhammad, Hussin, Zainol, and Hadi (2017) and Zulkhibri (2015) have identified certain Islamic Microfinance products as proven tools for advancing Financial Inclusion. These Islamic financial instruments, such as ar-rahm, zakah, sadaqa, awqaf, and qardul-hasan, have the potential to bring more than 40 million financially underserved individuals, particularly from religious communities, into the formal financial system. As Mushkalamzai *et al* (2023) have emphasized, several countries, including Bosnia and Herzegovina, the Islamic Republic of Iran, Indonesia, Pakistan, and the UK, have effectively utilized qardul-hasan to extend microfinance services, thereby enhancing financial inclusion.

Akhuwat Foundation provides microcredit to its clients in the form of qardul-hasan, primarily targeting impoverished individuals. While previous researches have examined data from Akhuwat Foundation in Pakistan to evaluate the socio-economic impact of microfinance on borrowers from various angles (as seen in studies by Shafique *et al.*, 2020; Humera, 2020; Imrab *et al.*, 2018; Ghazala *et al.*, 2020; Juliana, 2016), there remains an opportunity for further investigation. Notably, there is limited existing research on the specific role of Akhuwat's qardul-hasan in advancing financial inclusion. Hence, building upon the existing body of knowledge, this study aims to assess the impact of qardul-hasan in fostering financial inclusion in Pakistan. This research endeavors to shed light on the unique contribution of Akhuwat Foundation's financial approach in promoting greater financial inclusivity within the country.

Objectives of the study

The aim of the study is to examine the role of *qardul-hasan* in enhancing financial inclusion; a case study of al-Akhuwat. In particular, the study has the following objectives:

1. To examine whether the Akhuwat *qardul-hasan* scheme increases the tendency of the beneficiaries to open formal bank accounts.
2. To assess the effect of Akhuwat *qardul-hasan* in the saving habit of the beneficiaries.
3. To assess whether the Akhuwat *qardul-hasan* enhances the participation of the beneficiaries in the Islamic insurance (*Takaful*).

Hypotheses

The following is the null hypothesis that would guide the data collection of the study;

H₀₁: Akhuwat *Qardul-hasan* does not significantly increase the tendency of the beneficiaries to obtain formal bank accounts.

H₀₂: Akhuwat *Qardul-hasan* does not significantly improve the saving habit of the beneficiaries.

H₀₃: Akhuwat *Qardul-hasan* does not significantly enhance the beneficiaries to participate in Islamic insurance (*Takaful*).

Empirical Literature Review

Given that Islamic microfinance is an emerging industry, different studies have shown its relevance in enhancing financial inclusion. This section contains the review of previous studies on financial Inclusion, Islamic Microfinance (*qardul-hasan*) and Akhuwat:

Focusing on Financial Inclusion in Pakistan, the review begins with Farooq *et al.* (2023), who investigated the long-run relationship between financial inclusion and agricultural growth in Pakistan for the period of 1960–2018. The autoregressive distributed lag (ARDL) approach, the Johansen co-integration test and the dynamic ordinary least squared (DOLS) method are used for the evaluation. The results show that in both short- and long run, domestic credit has a significantly negative impact on the agricultural growth, while broad money and cropped area positively affected the agricultural growth in Pakistan in both cases.

Furthering the discussion, Raza *et al.* (2023) investigated the effects of financial inclusion and literacy on establishing a sustainable performance of farms. A structured questionnaire was used to collect the data from 220 farmers within the Central Punjab region of Pakistan. Small-scale farms demonstrated a potential to sustain their performance by improving financial inclusion and financial literacy. Trust in extension services for agriculture plays a significant role in moderating the impact of eight independent variables (knowledge, skills, attitude, behavior, access, usage, quantity, welfare) on sustainable farm performance. The study implies that increased trust in financial services is essential for improving sustainable performance in the agricultural sector. The effect imposed by financial actors is crucial for establishing trust in financial services linked to sustainability within the agricultural industry.

Additionally, Masood, Maitlo, Shaukat, & Gul (2023) investigated the usage of mobile e-wallet services via determining factors that influence the velocity of using E-wallet services in Pakistan. A survey questionnaire was conducted over 210 sample sizes from different students of Universities of Pakistan. Results were subsequently analyzed by the SPSS package and SEM-PLS. The findings indicate

that Perceived risk is mediated by the perceived usefulness and government support to adopt the E-Wallet services (Usage Intention) even after the Covid-19 ends. This study uses the Technology Acceptance Model (TAM) by incorporating external factors that have never been used in this manner all at once, including Perceived risk, perceived usefulness, and government support.

Shifting our focus to women, Zahid, Rafique, Khurshid, Khan, & Ullah (2023) ^[60] assessed the role of financial literacy in improving financial inclusion among Pakistan's women (a country characterized by a high gender gap and lower financial inclusion). A positivist philosophy was adopted and a survey design using a self-administered structured questionnaire was used to collect data from a sample of working women and university graduates. Initially, a pilot test was conducted on a sample of 80 respondents to confirm the reliability and validity of the questionnaire used. Final sample of 478 respondents was analyzed using inferential descriptive statistics and covariance-based structural equation modeling (CBSEM). The findings demonstrate that different aspects of financial literacy, i.e., savings management practice, debt management practice, investment management practice, and financial planning management practice, have a significant positive impact on financial inclusion among women. The findings are supported by theories of behavioral finance (i.e., self-efficacy and goal setting theory) and institutional theory.

More so on gender-specific financial inclusion, Govindapuram, Bhupatiraju & Sirohi (2023) focused specifically on the factors that shape women's access to finance. The study draws on the trove of women-specific data collected in the fourth round of the National Family Health Survey (NFHS-4), conducted in 2015–16 in India, to examine the factors that influence women's access to finance. The results indicate that while the forces that shape women's access to finance function at multiple levels, micro-level factors appear to be powerful drivers of inclusion. The analysis reveals that household-level economic indicators like wealth, gender of household head and their rural-urban location are crucial, but so are individual-level characteristics which explain approximately 83% of the variation in the multilevel regressions. Informal gender norms that govern women's mobility and economic activity crucially influence the ability of women to access loans and open bank accounts. Delving deeper into the attitudes of impoverished Muslims, Ahmad, Lensink, and Mueller (2023) present a study that investigates impoverished Muslims' attitudes toward Islamic and non-Islamic finance in the context of financial inclusion strategies, aiming to mitigate social desirability bias in survey responses. Employing a list experiment with 2,145 participants from Multan, Pakistan, the study finds that 37 percent of respondents admit to using non-Islamic finance, nearly double the direct survey's affirmative responses. This suggests social desirability bias in the direct questioning. The research highlights substantial variations in both the extent of underreporting of non-Islamic finance and actual usage, emphasizing the diversity of attitudes and behaviors within the surveyed population concerning financial inclusion and non-Islamic financial services.

Broadening our horizons, Ozili, Lay and Syed (2023) ^[56] examined the intricate relationship between financial inclusion, religion, and economic growth in various countries, shedding light on its multifaceted nature. The research explores the impact of financial inclusion on

economic growth in both religious and secular countries, employing indicators such as the number of ATMs and bank branches per 100,000 adults, which measure the accessibility dimension of financial inclusion through physical points of service. Their analysis, conducted using the two-stage least square (2SLS) regression method, yields several noteworthy findings. In secular countries, the contraction of bank branches is associated with increased economic growth. However, in these secular contexts, economic growth is positively affected by bank branch expansion and greater internet usage, while an abundant supply of ATMs combined with extensive internet usage is linked to decreased economic growth. Conversely, in religious countries with a widening poverty gap, bank branch expansion is significantly associated with economic growth, indicating that financial inclusion through bank branch expansion is effective in promoting economic growth in economically disadvantaged religious countries. Additionally, the study highlights the crucial role of internet usage as a determinant of economic growth in secular countries.

In Bangladesh, Alhammadi (2023) investigated the relationship between financial inclusion and sustainable economic development in Indonesia by exploring the potential impact of Takaful. Specifically, the study seeks to examine the feasibility of leveraging Takaful as a means to foster financial inclusion and drive economic growth in Indonesia. This study uses a qualitative analysis methodology, specifically using content analysis techniques, to investigate the relationship between financial inclusion and sustainable economic growth in Indonesia, focussing on the role of Takaful. The content analysis enables a systematic study of the data to identify trends and topics pertinent to Takaful and its potential to advance financial inclusion. The study's results reveal a direct causal link between economic growth and achieving financial inclusion through the use of Takaful. The findings also indicate a positive correlation between the increased presence of Takaful markets and accelerated economic growth.

Expanding our understanding further, Nyarko, Amoateng & Aboagye (2023) ^[45] examined the impact of financial inclusion on poverty through access to mobile money in developing economies. The study employed the principal component analysis to construct an index of financial inclusion using demand and supply indicators, including mobile accounts. Also, the study used the two-step system GMM estimator for the analysis because of its efficiency and robustness in addressing heteroscedasticity and autocorrelation. The main finding is that financial inclusion generally increased and significantly reduces poverty in the sample period. Furthermore, income inequality worsens poverty.

Moving on to neighboring South Asian countries, Biswas (2023) attempted to explore the contribution of financial inclusion on economic growth in 4 South Asian countries. In my study, I used various panel data models, and several measures of financial inclusion to reveal the relationship between economic growth and financial inclusion. The findings of the study confirmed that financial inclusion had a positive impact on economic growth in those countries although the extent of effect varies across different measures of financial inclusion.

Also, Chowdhury and Chowdhury (2023) ^[69] measured the impact of financial inclusion on human development in Bangladesh, India, and Pakistan. Despite rapid economic

progress, these three South Asian countries still lag in improving their state of inequality, poverty, and unemployment. Using panel data and applying the generalized method of moments (GMM), this study finds a positive impact of financial inclusion on human development, specifically on income level, life expectancy, and educational attainment. It is expected that the outcome-based recommendations of this study will help policymakers optimize the benefits of financial inclusion in accelerating human development in the three highly promising emerging South Asian countries.

Venturing into the realm of emerging economies, Wang *et al.* (2023) ^[96] assessed the relationship between financial inclusion and bank profitability in emerging economies, i.e., “Bangladesh, Egypt, Indonesia, Mexico, Nigeria, Pakistan, Philippines, and Vietnam”. The second-generation econometrics of panel data has been applied to examine the cross-section independence and control the heterogeneity between cross sections. Additionally, the authors employ the following tests for the analysis: “the unit root test, bootstrap cointegration, Pedroni cointegration, fully modified ordinary least square (FMOLS), and heterogeneous panel causality techniques”. The annual data consist of the period from 2000 to 2019. The findings reveal that financial inclusion fosters bank profitability. Therefore, easier access to financial services and products will maximize banks' profitability. Additionally, the association between financial inclusion and bank profitability is unidirectional.

Unraveling the fintech landscape, Ozili (2023) ^[12] investigated the determinants of Fintech and Bigtech lending. The study focused on the effect of financial inclusion and financial development on Fintech and Bigtech lending. Using data for 18 countries from 2013 to 2019 and employing the difference-GMM and 2SLS regression methods, the findings reveal that financial inclusion and financial development are significant determinants of Fintech and Bigtech lending. Financial development is a positive determinant of Fintech and Bigtech lending while financial inclusion has a significant effect on Fintech and Bigtech lending. Also, Fintech and Bigtech lending led to greater banking sector stability and also poses the risk of rising nonperforming loans. There is also a significant positive correlation between financial development and Fintech and Bigtech lending.

Similarly, Ozili (2023) ^[13] examined the effect of gender equality on financial stability and financial inclusion for 14 developing countries using yearly data from 2005 to 2021. The two-stage least squares regression estimation and the generalized linear model regression estimation were used to investigate the effect of gender equality on financial stability and financial inclusion. Gender equality has a significant positive effect on financial stability and financial inclusion in developing countries. Gender equality has a significant positive effect on financial stability and financial inclusion in African countries. Gender equality has a significant positive effect on financial stability but not on financial inclusion in non-African countries.

Comparing financial inclusion on a regional scale, Bekele (2023) ^[25] conducted a comparative analysis of the factors affecting financial inclusion in Kenya and Ethiopia at macro and micro levels. A generalized linear model is used to examine the determinants of and barriers to financial inclusion using the 2017 Global Findex Database, whereas a descriptive analysis is used to explore their macro-level differences. Kenya has a higher level of financial inclusion

than Ethiopia. Differences in financial liberalization policy, gross domestic product, percentage of rural population, and mobile money service expansion are some macro-level differences that explain this variation. Differences in literacy rates and means of receiving payments such as government transfers explain some of the micro-level variations between the two countries. In addition, gender, age, employment status, and owning a mobile phone have significant and positive effects on financial inclusion. However, lack of documentation, lack of trust, and lack of money are significant barriers to financial inclusion.

Based on the BRICS nations, Pandey, Kiran and Sharma (2023) ^[94] analyzed the determinants of financial inclusion (FI) for BRICS (Brazil, Russia, India, China and South Africa) nations using the no. of depositors and Automated Teller Machines/user as dependent variables, a proxy for FI from 2004 to 2019. The study employs fixed-effect, cross-section random-effect and simple panel least square techniques to determine FI for different BRICS countries. The empirical findings of fixed effect and cross-section random highlight that population and internet users affirmatively and significantly influence FI. Simple panel least square analysis indicates that domestic credit to the finance sector, population, internet users and bank branches positively influence the no. of depositors in these economies. Gross domestic product (GDP) and domestic credit to private sector (DCPS) inversely affected FI. Results of the second measure of FI (ATM per user) show the exchange rate of domestic credit to the private sector, and GDP positively influences FI.

Crossing over to Mauritania, Sidi & Kassim (2023) ^[80] examined the potential determinants of accessibility to financial services among the Mauritians. In methodology, a total of 583 self-administered questionnaires were collected based on random sampling method from the three largest cities in Mauritania, namely, Nouakchott, Nouadibou, and Kiffa. Logistic regression analysis was performed to determine the critical factors influencing financial inclusion in Mauritania. The results highlight specific determinants affecting financial inclusion among the households in Mauritania (such as location, religious activities, financial cost, and financial literacy).

In the Sultanate of Oman, Warsame, Lasyoud & Abdalla (2023) shifted our attention to Western Asia. They investigated factors that have the highest influence on financial inclusion in the Sultanate of Oman. A survey questionnaire employing convenience sampling was conducted at Al-Buraimi governorate to investigate the moderation effect of financial inclusion in Oman by looking at the impact of certain variables including gender, age, and level of education among others. The structural modeling technique was applied to understand this phenomenon. The results revealed that the well-off participants were more likely to be financially included, while the youngsters were more likely to be financially excluded and less educated. Furthermore, the study found that the effect of financial literacy on financial inclusion in the Sultanate of Oman is significantly moderated by age, gender, and employment status.

In the context of Nigeria, Bashir and Sulaiman (2023) identified factors that determine access to financial services is key in ascertaining proper policy initiatives to attain financial inclusion in Borno State, Nigeria. The study employed both qualitative and quantitative methods and used

both primary and secondary data. Statistical analysis was employed using STATA to examine the determinants of financial inclusion. Findings of the study suggested that Islamic finance has a positive relationship with financial inclusion, which was noted through both qualitative and quantitative analysis. The empirical investigations conducted in the study revealed that the determinants of financial inclusion (gender, age, income and educational attainment) influence financial inclusion. Individual attributes as determinants of financial inclusion and role of Islamic finance in Nigeria.

Turning our focus to another Nigerian state, Safiyanu and Yusuf (2022) investigated the determinants of financial inclusion in Niger State using National Bureau of Statistics survey data. Financial inclusion is a panacea for economic growth and development. However, Nigeria's state-level analysis of its influencing variables has received little attention. This study used survey-based data to evaluate the determinants of financial inclusion in Niger state. The Logistic regression method was adopted. The empirical findings revealed that income, phone availability, social security, literacy, education, and gender are all major positive drivers of financial inclusion, whereas age has a negative impact. The study suggests that the government improve financial inclusion policies to increase access to social security, educational standards, school enrolment, gender equality, and increased income.

In Morocco, where Ezzahid and Elouaourti (2021) ^[41] construct a financial inclusion index to evaluate macroeconomic and microeconomic aspects, highlighting the role of internet usage. The study pursued a dual objective. Firstly, they constructed a financial inclusion index to evaluate whether macroeconomic and sectoral reforms enacted over the past decades had bolstered financial inclusion. Secondly, they delved into microeconomic aspects, examining determinants of financial inclusion, the links between individual characteristics and barriers, the factors driving mobile banking use, savings motivations, credit objectives, and the determinants of turning to informal finance. Employing Principal Component Analysis and Probit models on a dataset of 5,110 Moroccan adults, their findings showed varying trends in financial inclusion over time, distinct determinants for formal finance and mobile banking, the role of education and income in reducing barriers, the positive impact of mobile banking, and the potential of Islamic finance in promoting inclusion, while also identifying demographic factors associated with resorting to informal finance.

Turning attention to Small and Medium Enterprises (SMEs), ElDeeb, Halim, and Kamel (2021) ^[39] identify key elements contributing to their financial inclusion, emphasizing integrated marketing, utilization of banking services, and macroeconomic risk assessment. They introduced various determinants, following mainstream literature, designed to attract SMEs to financial services. These determinants encompass both supply-side factors, like improving access to financial services and implementing marketing awareness campaigns to educate SMEs about the benefits of these services, and demand-side factors, involving the actual usage of financial services by SMEs. The study also examined macroeconomic risks that could affect both investors and SMEs. The researchers collected data through a questionnaire distributed to bankers responsible for SME portfolios, analyzed it using descriptive and inferential statistics, and

employed a two-step econometric approach. The results from this approach identified three main pillars driving financial inclusion: integrated marketing tools, enhanced utilization of banking services, and the assessment of macroeconomic risks hindering SMEs' access to financial services. The interaction between these pillars explained 86.6% of the variability in the level of financial inclusion for Egypt's SMEs.

Regarding Islamic Microfinance and Akhuwat, Shafique *et al.* (2020) ^[64] shifted their focus to Pakistan, investigating the impact of Akhuwat Islamic microfinance on poverty alleviation and women's empowerment. The research examined the effect of microfinance credit on poverty alleviation and women empowerment. A deductive research approach was adopted. The interview respondents consisted of 10 executives and managers of microfinance organizations. The data collected was analyzed using thematic analysis that has been based on several themes according to the responses of the respondents. Overall result shows a strong association between micro credit financing, poverty alleviation, and women empowerment.

In a similar vein, Humera (2020) assessed the impact of Islamic Microfinance on borrower's income in Pakistan; a case study of Akhuwat. The study was conducted to analyze microfinance services provided by Akhuwat and its effects on borrowers' income and consumption. The study adopted the quantitative and qualitative research designed by applying questionnaires and interviewing techniques to collect data. The study finds that there is a reasonable increase in the income and consumption of the borrowers. Results indicated an average increase of 18 % in rural borrowers' income and an average increase of 23% in urban borrowers' income.

Expanding their scope to Sub-Saharan Africa, Asuming *et al.* (2019) ^[19] investigated the determinants of inclusive finance in thirty-one Sub-Saharan African nations. Data spanning 2011 to 2014 was sourced from the Global Findex repository of the World Bank, World Development indicators and Heritage Foundation. The objective of the paper was to ascertain account ownership, level of savings and borrowing as measures of inclusive finance on micro-level variables of level of education, age, gender and wealth status and that of macro variables of IT infrastructure, GDP per capita, the spread of ATM machines, rural population and ease of doing business. The study built a probit model and estimated the model using the ordinary least square technique. The study found and concluded that the micro-level variables GDP per capita, the spread of ATM machines and ease of doing business are significant determinants of inclusive finance. Crossing into India, Poonam and Chaudhry (2019) ^[96] examined the factors determining inclusive finance in India. The study based on primary data collected via questionnaire. The sample size of the study is 411 family units. The model was estimated using logit regression technique. It emerged that age, gender and occupation has a negative insignificant impact on savings. Education, cast and land ownership were positive but insignificant. The study concludes that income is a positive significant determinant of savings the measure of inclusive finance in the study.

In Jammu and Kashmir, India, Abrol and Kaur (2018) examined the factors determining financial inclusion in Jammu and Kashmir States in India. To achieve this, primary data were collated via structured questionnaires. The sample size for the study is four districts with 100 respondents each with a total sample size of 400. The principal component analysis technique was used for the estimation. The results

indicated that bank credit, bank service, financial access, income, savings, health insurance, use of financial services and availability of agency banking as determinants of financial inclusion.

Similarly, David *et al.* (2018) zoomed in on the determinants of financial inclusion, utilizing time series data spanning several years. Time series data spanning 1990 to 2016 were collated and estimated using error correction technique. The dependent variable is the number of depositors with deposit money banks per 1,000 adults, while the independent variables are gross domestic product per capita, the ratio of broad money supply to gross domestic product, credit to micro, small and medium enterprises and internet users. The study found that gross domestic product per capita, the ratio of broad money supply to gross domestic product, credit to micro, small and medium enterprises and internet users are significant determinants of financial inclusion in Nigeria.

Akileng, Lawino, and Nzibonera (2018) turned their attention to Uganda, aiming to understand what determined financial inclusion in both rural and urban settings. Cross sectional survey design was adopted with universe of adult rural and urban inhabitants in Uganda. Data were collated using structured questionnaire which was estimated using multiple regressions. The study found financial literacy, age, and income to be significant determinant of financial inclusion, while education and gender are insignificant in Uganda.

In North Ghana, Yakubu, Dinye, Buor, and Iddrisu (2017) ascertained the determinants of financial inclusion in North Ghana. Data for the study were collected via structured questionnaires. Specifically, the data was collated from 395 respondents. A discriminant function was built and estimated. The study found age, cost, capability, literacy, distance and employment as key determinant of inclusive finance in Northern Ghana.

On another front in Lahore, Pakistan, Imrab *et al.* (2018) delved on the impact assessment of microfinance on economic empowerment of women in Lahore, Pakistan. A disproportionate stratified random sampling technique was used to draw a sample of 175 respondents/female clients of Akhuwat foundation from Lahore city. Data were collected through questionnaire containing five point Likert scale. Data were analyzed through linear regression performed on SPSS.v.20. It has been found that microfinance has a considerable impact on economic empowerment of women. The research revealed that women empowerment is linked with social intermediation/guidance and enterprises development which seems to have a lasting impact in achieving financial independence.

Meanwhile, Abdul Razak *et al.* (2017) centered their research on Malaysia, examining the role of Islamic collateral (*Ar-rah*) in enhancing financial inclusion. The study adopted a structural equation modeling approach which examined the relationship between financial inclusion and the adoption of *ar-rah* financing in promoting the well-being of its customers throughout Malaysia. Data distributed via questionnaire to 239 respondents were analyzed using descriptive and structural equation modeling. The results indicated that there is a positive relationship between financial inclusion and *ar-rah*'s financing adoption. In addition, the adoption of *ar-rah* among customers improves the well-being of individuals and society.

Soumar *et al.* (2016) cast a wider net, examining the determinants of inclusive finance in Central and West Africa. Their extensive analysis of data from 18 countries revealed

the multifaceted nature of factors influencing financial inclusion in these regions. Data from 18 countries were collated from the World Bank Global Financial Inclusive (Global Findex) databank. The study identified Ownership of account, savings and frequency proxies of financial inclusion and built three models using the same set of explanatory variables; which includes gender, educational level, age, the income level, residential area, employment standing, marital status and family size. The models were estimated using the multiple regression technique. The study found that inclusive finance in both regions is significantly determined by employment, education, age, income, gender, residential area, marital status and family size.

In that respect, Allen, Demircug-Kunt, Klapper and Peria (2016) examined the determinants of financial inclusion. The objective of the study is to identify individual and country specific attributes of inclusive finance. Panel data were collated from 123 countries in the Global Findex repository of 2011. The study employed multiple regression technique to estimate the model. The estimated model found that nearness to banking services, political stability, low cost of operating accounts and improved legal rights as key determinants of financial inclusion. Furthermore, the study found that rural dealers, indigent and young people are the most likely groups to be financially excluded from financial inclusion policies.

Turning our attention to China while venturing into the nonprofit sector, Ghazala, Yasir, Yunkai, Abdul, Asif, Yacong, Caihong, and Liuyan (2020) evaluated the Akhuwat Foundation's microfinance project. The study examined Akhuwat microfinance project to understand its service activities and to define business exchanges from the perspective of reciprocal benefits. A qualitative approach was adopted and data was gathered through in-depth interviews with the employees of Akhuwat microfinance project. The research found that Akhuwat service system is classified as customer centric, and follows the spirit of S-D logic (service dominant logic) conceptualization of business.

Theoretical Framework

For the purpose of this study, the "Vulnerable group theory of financial inclusion" is reviewed and found to be relevant in achieving the research objectives and forms the theoretical framework of the study.

Vulnerable Group Theory of Financial Inclusion

The vulnerable group theory of financial inclusion was formed on the basis of giving special preference to the vulnerable group of people in the society in terms of access to financial services. Vulnerable people are often the most affected by financial crises and economic recession, therefore, it makes sense to bring these vulnerable people into the formal financial sector. The proponents of this theory, P.K. Ozili, Ghosh, Vinod, Demircug-Kunt, and Swamy assert that financial inclusion activities or programs in a country should be targeted to the vulnerable members of society such as poor people, young people, women, and elderly people who suffer the most from economic hardship and crises (Bhandari, 2018).

According to Ozili (2018) the vulnerable group theory of financial inclusion has some merits. Firstly, the theory makes an attempt to reduce the financial exclusion problem by targeting vulnerable groups for financial inclusion and to bring them into the formal financial sector. Secondly, under

this theory, it is easy to identify the financially excluded members of the population. The vulnerable members of the population can be identified by their degree of vulnerability, income level, gender, age, and other demographic characteristics. Thirdly, it may be cost-effective to target only the vulnerable members of the population for financial inclusion compared to achieving financial inclusion for the entire population.

One way to achieve this is through government to-person (G2P) social cash transfers into the formal account of vulnerable people. Making G2P social cash transfer payments into the formal account of poor people, young people, women, and elderly people may encourage other poor people, young people, women, and elderly people to join the formal financial sector to own a formal account to take advantage of the G2P social cash transfer benefits, thereby, increasing the rate of financial inclusion for vulnerable groups. Also, when social cash transfer is working, and other tools for achieving financial inclusion are provided to vulnerable people in society, it can make vulnerable people feel that they are being compensated for the existing income inequality that affect them, which gives them an opportunity to catch up with other segments of society. (Ghosh & Vinod, 2017)

Also, another means of bringing the vulnerable group into the formal financial sector is by way of offering interest free loans into the accounts of the beneficiaries which by so doing will encourage the financially excluded citizens to develop interest in opening a formal account. By implication, the interest free loans will also activate the creativity of the beneficiaries and not only improving financial inclusion but in turn developing the social standard as well as sustainability of the beneficiaries (Ghosh & Vinod, 2017). The implication of the theory is that it identifies some members of the population to be vulnerable, and suggest that financial inclusion efforts should be targeted to the vulnerable people in the society which is in line with the stated research objectives of the study. This research focuses on how Akhuwat foundation micro-credit encourages the unbanked beneficiaries or vulnerable groups in having access to formal financial services in an affordable manner. The theory is very relevant to the study because it will assist and guide the research in reaching the targeted population of the research since the *Akhuwat qardul-hasan* was founded on the basis of assisting and reaching the poor.

Methodology

Research Design

This study employed the descriptive survey and inferential design as its research approach because it aims at assessment of a particular phenomenon. Descriptive research studies are those studies concerned with describing the characteristics of a particular individual or group of individuals. While, inferential design was used to generalize or predict a population based on the samples collected or to understand a relationship that exist between variables. The survey design deals with opinion of respondents through primary data collection method (Ranjit, 2011). The data from the respondents was collected through the use of structured (close-ended) questionnaire to allow the collection of a large amount of data from the sizeable population. This research design has been used in previous studies conducted by Abdul Razak, *et al* (2017), Akileng, *et al* (2018), Abrol and Kaur (2018) and Poonam and Chaudhry (2019) [96]. The survey

design is considered appropriate for this study as it seeks to examine the role of *Qardul-hasan* in enhancing financial inclusion.

Population of the Study

The population of the study consists of the Akhuwat *qardul-hasan* beneficiaries of Lahore district of Punjab province. A total of 6000 population is the target of this study from the three areas of Lahore which include men and women. There are 3200 beneficiaries in Badami Bagh, 1755 in Kot Khawaja Saeed and 1455 in Kahna Nau area of Lahore district (Akhuwat Updated Branches Database, 2021).

Sample Size

The sample size represents the portion extracted to represent the population. The research used the Yamane (1967) formula for determining sample size. According to Yamane (1967), an appropriate sample size for a particular population can be determined using the formula:

$$n = \frac{N}{1+N(e)^2}$$

Where,

n= Sample size

N= Population of the study

e= level of precision at 0.05

N=6000. e= 0.05.

Based on this formula, a sample of 380 will be drawn from 6000 target population of *Akhuwat* beneficiaries from three districts of Lahore, Pakistan.

Sampling Technique

This research used a cluster and purposive sampling technique. Cluster is a sampling technique which involves dividing a population into groups or clusters, from which a sample of the clusters is drawn (Ranjit, 2011). The purposive sampling is the technique that targets who can provide the best information to achieve the objectives of the study. It usually focuses on those with the required information and be willing to share it with the researcher (Ranjit, 2011). The population undergone multiple cluster sampling technique since the *Akhuwat Qardul-hasan* has coverage of the whole of Pakistan. The study will focus on Lahore (being the pioneer district of Akhuwat Microfinance) under the Punjab Province of Pakistan. The samples of the study were collected from three areas of Lahore district of Punjab. These areas, Badami Bagh, Kot Khawaja Saeed and Kahna Nau were the source of the samples for the study because Punjab is the most populated province and agriculture hub of Pakistan. Therefore, the samples of the study were drawn from the three clusters; Badami Bagh, Kot Khawaja Saeed and Kahna Nau branches of Akhuwat microfinance.

According to Hullan (1999) in a case study research, purposive sampling technique is recommended because it is a very useful design when exploring an area where little is known or where you want to have a holistic understanding of the situation, phenomenon, episode, site, group or community. Similarly, the purposive method will bridge the gap of nonchalant attitude by the respondents in filling the questionnaire. Also, this sampling technique (purposive) was used by AbdulRazaq *et al.* (2017) on a similar study on the

role of *Rahn* in enhancing financial inclusion. The 380 samples of the study are to be proportionately distributed among the three areas (clusters) based on the population percentage. That is, 173 samples from Badami

Bagh (51% of the population), 110 from Kot Khawaja Saeed (27% of the population) and 97 from Kahna Nau (22% of the population) area respectively.

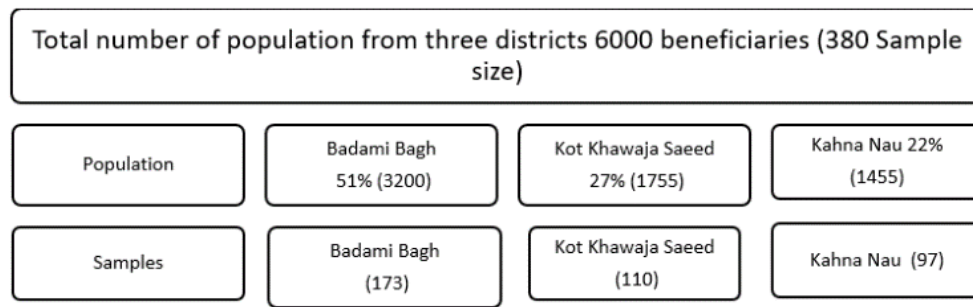


Fig 4: Akhuwat Updated Branches Database (2021)

Instrument of Data Collection

This research used primary method of data collection using structured questionnaire to receive data from the respondents. This method is viewed appropriate because it describes the characteristics of a particular individual or group of individuals known as the respondents. The questionnaire contained two sections in which section A consists of demographic information of the respondents while, section B covers questions and statements on the relationship between latent (endogenous and exogenous) variables that is Akhuwat *qardul-hasan* in relationship to financial inclusion indicators (obtaining formal bank account, saving habit and Islamic insurance participation).

Techniques for the Data Analysis of the Study

The study used structural equation model (SEM) using Partial Least Square software and variance based. Percentages, means and standard deviation were also used to analyze the data respectively. Variance based model is a second-generation statistical tool used by researchers for concurrent analysis of multiple variables. Thus, this research adopted Partial Least Square using Smart-PLS version 3.0 in the conduct of the data analysis. This technique of data analysis is selected because it enables the researcher to assess the relationship that exists between measurement model (indicators) and structural model (construct). This method of analysis was previously used in a similar study conducted by Abdul Razak, *et al* (2017) on the role of *Ar-rahn* in enhancing financial inclusion.

Model specification of the study

In order to examine the influence of the independent variable (*Qardul-hasan*) on the dependent variables (obtaining formal bank account, savings habit and Islamic insurance (*Takaful*) participation) by the beneficiaries of the Akhuwat Micro-finance, the study adopted the simple linear regression model of specification.

$$Y_1 = \beta_0 + \beta_1 X_1 + \epsilon \tag{1}$$

$$OFBA_1 = \beta_0 + \beta_1 QH_1 + \epsilon$$

$$Y_2 = \beta_0 + \beta_1 X_1 + \epsilon \tag{2}$$

$$SH_2 = \beta_0 + \beta_1 QH_1 + \epsilon$$

$$Y_3 = \beta_0 + \beta_1 X_1 + \epsilon$$

$$TAK_3 = \beta_0 + \beta_1 QH_1 + \epsilon$$

Where,

Y_1, Y_2 and $Y_3 = OFBA_1, SH_2,$ and TAK_3 respectively.

$OFBA_1 =$ Obtaining Formal Bank Account.

$\beta_0 =$ Intercept.

$SH_2 =$ Savings Habit.

$\beta_0 =$ Intercept.

$TAK_3 =$ Takaful participation.

$\beta_0 =$ Intercept.

$QH_1 =$ *Qardul-hasan*.

$\beta_0 =$ Intercept.

$\beta_1 =$ Coefficient of the independent variable.

$\epsilon =$ Error term.

Data Presentation and Analysis

This section presents and analyses the data generated for the study using Partial Least Square (PLS) path modelling. The chapter begins by reporting the results of the pilot study and preliminary analysis that is, normality test, followed by the descriptive statistics of demographic features of the respondents. Thereafter, the measurement model was assessed to determine the individual item reliability, internal consistency reliability, convergent validity and discriminant validity. Finally, results of structural model are reported (that is, level of the R-squared values, effect size (F^2), and predictive relevance of the model (Q^2)).

Pilot Study Result

In order to assess the normality of the data, a pilot test was conducted using two statistical tests: the Kolmogorov-Smirnov test and the Shapiro-Wilk test. The significance level (α) was set at 0.05. The test was conducted on four variables related to financial Inclusion: *Qardul-hasan* scheme, open formal bank accounts, saving habit, and participation in *Takaful*. The results of the normality tests are presented below:

Table 1: Pilot Test: Kolmogorov-Smirnov test and the Shapiro-Wilk test

Variable	Kolmogorov-Smirnov (Statistic, Sig.)	Shapiro-Wilk (Statistic, Sig.)
Qardul-hasan scheme	0.149, 0.450	0.954, 0.143
Open formal bank accounts	0.052, 0.510	0.975, 0.235
Saving habit	0.083, 0.690	0.980, 0.147
Participation in Takaful	0.145, 0.070	0.945, 0.545

Source: Compiled pilot results of the normality tests using the Kolmogorov-Smirnov and Shapiro-Wilk tests for each variable

The Kolmogorov-Smirnov test assesses the goodness-of-fit between the observed data and the theoretical normal distribution. It provides the test statistic and the associated p-value (Sig.). A higher p-value suggests that the data follows a normal distribution (Hair *et al.*, 2007) [27]. The Shapiro-Wilk test is another test for normality, which measures the departure from normality based on the sample data. The test provides a statistic and a p-value (Sig.), with higher p-values indicating the data's adherence to a normal distribution (Hair, Sarstedt, Ringle, & Mena, 2012) [94].

Based on the provided results, none of the variables have statistically significant deviations from normality at the conventional significance level (e.g., 0.05). However, it's

important to note that these results are based on a pilot study with limited sample size. For more robust conclusions, it is recommended to conduct further analyses with a larger sample size to validate the normality assumption and ensure the generalizability of the findings.

Results of the Pilot test reliability and validity of the measurement scales

The below result provides initial insights into the reliability and validity of the measurement scales used to assess different constructs: Participation in Takaful, Open formal bank accounts, Qardul-hasan scheme, and Saving habit.

Table 2: Composite Reliability (pc), Average Variance Extracted, Cronbach's Alpha

Construct	Composite Reliability (pc)	Average Variance Extracted	Cronbach's Alpha
Participation in Takaful	0.945	0.565	0.932
Open formal bank accounts	0.905	0.443	0.917
Qardul-hasan scheme	0.843	0.453	0.876
Saving habit	0.873	0.552	0.891

Source: Compiled pilot results of the reliability and validity of the measurement scales used to assess different constructs (2022)

Discussion of the results and the need for further research

Participation in Takaful:

The composite reliability of 0.945 suggests that the items measuring Participation in Takaful demonstrate high internal consistency. This indicates that the items consistently reflect the construct. The average variance extracted value of 0.565 suggests that approximately 56.5% of the variance in the measured indicators is accounted for by the Participation in Takaful construct. The Cronbach's Alpha coefficient of 0.932 indicates strong internal consistency among the items.

Based on these results, the Participation in Takaful construct appears to be reliable and captures a substantial portion of the construct's variability. However, further research is needed to establish the construct's validity and generalizability. It would be beneficial to validate the scale with a larger and more diverse sample to ensure the reliability of the measurements across different contexts and populations.

Open formal bank accounts:

The composite reliability of 0.905 indicates high internal consistency among the items measuring Open formal bank accounts. The average variance extracted value of 0.443 suggests that approximately 44.3% of the variance in the measured indicators is explained by the Open formal bank accounts construct. The Cronbach's Alpha coefficient of 0.917 further supports the strong internal consistency of the items.

Although the construct demonstrates high internal consistency, the average variance extracted value indicates that there may be other factors influencing the measured indicators. To strengthen the validity of the measurement scale, further research could involve evaluating the construct's convergent and discriminant validity.

Qardul-hasan scheme

The composite reliability of 0.843 suggests good internal consistency among the items measuring Qardul-hasan scheme. The average variance extracted value of 0.453 indicates that approximately 45.3% of the variance in the measured indicators can be attributed to the Qardul-hasan scheme construct. The Cronbach's Alpha coefficient of 0.876 supports the strong internal consistency of the items.

While the internal consistency of the measurement items is promising, further research is necessary to establish the construct's validity. This could involve assessing the construct's convergent validity by examining its associations with related concepts or conducting qualitative research to explore participants' understanding and perception of the Qardul-hasan scheme.

Saving habit

The composite reliability of 0.873 suggests good internal consistency among the items measuring Saving habit. The average variance extracted value of 0.552 indicates that approximately 55.2% of the variance in the measured indicators can be attributed to the Saving habit construct. The Cronbach's Alpha coefficient of 0.891 supports the strong internal consistency of the items.

In conclusion, the pilot test results indicate promising internal consistency for the constructs of Participation in Takaful, Open formal bank accounts, Qardul-hasan scheme, and Saving habit. However, further research is required to establish the validity of the measurement scales and ensure their applicability across different populations, contexts, and cultures. Additionally, exploring the constructs' convergent and discriminant validity and conducting confirmatory factor analysis can provide more robust evidence for the scales' measurement properties.

Response Rate Analysis

In this study, a total of 380 copies of questionnaires were distributed to the Akhuwat *qardul-hasan* beneficiaries of Lahore district of Punjab province in order to achieve high response rate a reminder was sent to the respondents who were yet to complete their questionnaire which resulted 300 returned questionnaires, out of the 380 questionnaires that were administered. A response rate of 78% was achieved and considered adequate for the analysis.

Preliminary Analysis

Initial data screening is very crucial in any multivariate analysis because it helps researchers identify any possible violations of the key assumptions regarding the application of multivariate techniques of data analysis (Hair *et al.*, 2007).

Additionally, initial data screening helps researchers to better understand the data collected for further analysis. Prior to initial data screening, all the 300 returned and usable questionnaires were coded and entered into the SPSS version 22 and Smart Pls version 3. Subsequent to data coding and entry, the following preliminary data analyses were performed: (1) Normality test, and Multicollinearity test.

Normality Test

This is a pre-requisite and parametric statistical testing of data to ensure an underlying assumption and objective judgement of

normality aims toward previous researches have traditionally assumed that, PLS-SEM provides accurate model estimations in situations with extreme non-normal (Wetzels, *et al.* 2009) ^[113]. However, this assumption may turn to be false because a study by Hair, Sarstedt, Ringle and Mena (2012) ^[60] suggested that researchers should perform a normality test on the data. Highly skewed or kurtosis data can inflate the bootstrapped standard error estimates which in turn underestimate the statistical significance of the path coefficients (Hair, Sarstedt, Ringle, & Mena (2012) ^[60]. This study used both the Kolmogorov-Smirnov and Shapiro-Wilk test of normality.

Table 3: Result of Normality Test

Variable	Tests of Normality			
	Kolmogorov-Smirnov ^a		Shapiro-Wilk	
	Statistic	Sig.	Statistic	Sig.
<i>Qardul-hasan</i> scheme	.150	.400	.935	.100
Open formal bank accounts	.060	.610	.989	.220
Saving habit	.089	.670	.990	.138
Participation in <i>Takaful</i>	.148	.080	.923	.530

Source: Computed from Field Survey (2022) using SPSS Version 22

From Table 1 the Kolmogorov and Shapiro Test of normality shows that the variables of the study namely *Qardul-hasan* scheme, open formal bank account, saving habit and participation in *Takaful* were statistically insignificant that is, $P < 0.05$, hence all the variables are normally distributed and therefore further analysis can be conducted.

Demographic Profile of the Respondents

This section analyses the demographic profile of the respondents of the study. The demographic characteristics are gender, age, marital status, loan received, high educational qualification, religion and location.

Table 4: Demographic Characteristics of the Respondents

	Frequency	Percentage (%)
Gender		
Male	261	87.0
Female	39	13.0
Total	300	100.0
Age		
20-29	55	18.3
30-39	100	33.3
40-49	101	33.7
50-59	40	13.3
60 and above	4	1.3
Total	300	100.0
Marital status		
Single	46	15.3
Married	254	84.6
Total	300	100.0
Loan Received		
Below 5,000	11	3.7
5,000-20,000	11	3.7
20,000-50,000	15	5.0
50,000-80,000	50	16.7
80,000-100,000	131	44.7
100,000 and above	79	26.3
Total	300	100.0
Educational Qualification		
Primary Certificate	119	39.7
Secondary Certificate	142	47.3
Post-secondary Certificate	39	13.0
Total	300	100.0
Religion		
Islam	275	91.7
Christianity	25	8.3
Total	300	100.0
Location		
Rural	35	11.6
Urban	265	88.3
Total	300	100.0

Source: Computed from Field Survey (2022) using SPSS Version 22

In terms of gender, Table 4 revealed that 261 of the subjects (87%) are males while only 39 (13%) are females. From the table, 55 (18.3%) of the respondents fall in 20-29 age group, while 30-39 age bracket consist of 100 (33.3%) respondents, 101 (33.7%) are within the age group of 40-49, 40 (13.3%) are within 50-59 age bracket, while, only 4(1.3%) falls within 60-above age bracket. This signifies that majority of the respondents are younger within the age bracket of 40-49 with 33.7%, followed by 30-39 age group who constitute 33.3%. Table 4 also shows that only 46 (15.3%) of the respondents are single, while 254 (84.6%) of the respondents are married. This clearly shows that majority of the respondents are married.

Similarly, Table 4 shows that 11(3.7%) of the respondents have received the loan of below 5,000. While, 11 (3.7%) have received the loan of 5,000-20,000, also, 15 (5%) have received loan of 20,000-50,000. In same vein, table 4.3 shows that 50 (16.7%) of the respondents have received 50,000-80,000 loan, 131 (44.7%) of the subjects received 80,000-100,000 loans, lastly, 79 (26.3%) of the beneficiaries received 100,000 and above loan. This shows that majority of

the respondents received 80,000-100,000 loans then follow by 100,000- and above loan receivers.

Furthermore, Table 4 indicates that 119 (39.7%) of the respondents acquired primary certificate, 142 (47.3%) have secondary certificate, while only 39 (13%) of the respondents have post-secondary certificate. This shows that majority of the respondents owns secondary certificate then follows by primary and lastly post-secondary certificate. Table 4 also shows that 275 (91.7%) of the respondents are Muslim, while only 25 (8.3%) of the subjects practice Christianity as their faith. Table 4 revealed that only 35 of the subjects (11.6%) domicile in rural areas while 265 (88.3%) are located in urban areas.

Descriptive Analysis of the Latent Constructs

In this section, descriptive statistics of the latent variables of the study were presented and discussed. Specifically, four latent variables were analysed to determine their mean, standard deviation, as well as, the minimum and maximum values. Table 4.4 provides a summary of the descriptive statistics of the study.

Table 5: Descriptive Statistics for Latent Variables

Construct	N	Descriptive Statistics			
		Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic
<i>Qardul-hasan</i> scheme	300	3.25	5.00	4.5412	.32908
Open formal bank accounts	300	1.43	5.00	3.5124	.74367
Saving habit	300	1.00	5.00	3.1778	.75136
Participation in <i>Takaful</i>	300	1.00	5.00	3.8014	.71916

Source: Computed from Field Survey (2022) using SPSS Version 22

Table 5 shows that the mean and standard deviation for the *Qardul-hasan* scheme were 4.5412 and 0.32908 respectively. This suggests that respondents tended to have high level of the scheme. Table 5 also indicates that the mean for the open formal bank accounts was 3.5124, with a standard deviation of 0.74367, suggesting that the respondents' open formal bank account level of outcomes as moderate. Further, the results show a moderate score for the saving habit (Mean = 3.1778, Standard deviation = 0.75136). In the same vein, a moderate level of participation in *Takaful* with mean and standard deviation of 3.8014 and 0.71916 respectively.

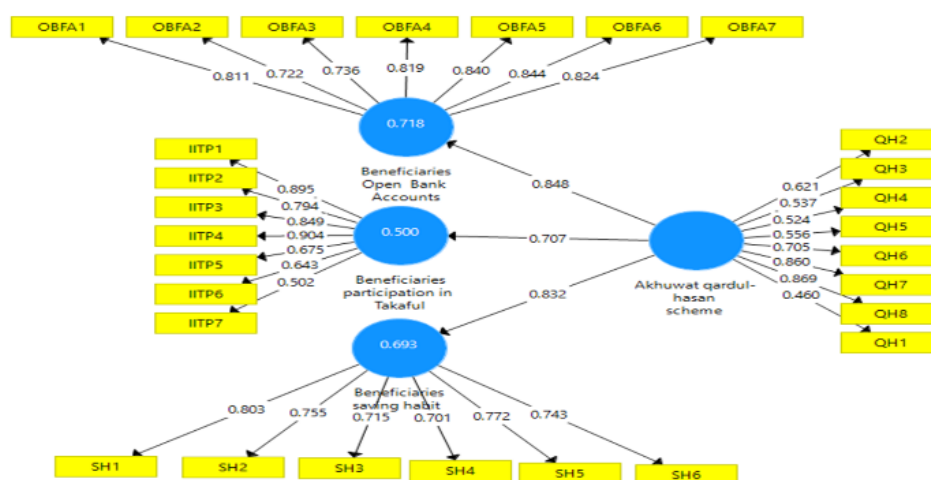
Assessment of PLS-SEM Path Model Results

This section presents a two-step process to evaluate and

report the results of PLS-SEM path, as suggested by Henseler, Ringle and Sinkovics (2009). This two-step process comprises of (1) the assessment of a measurement model, and (2) the assessment of a structural model, as depicted in Figure 4.1 (Hair *et al.*, 2014; Hair *et al.*, 2012; Henseler *et al.*, 2009) [12, 15, 23].

Assessment of Measurement Model

An assessment of a measurement model involves determining individual item reliability, internal consistency reliability, content validity, convergent validity and discriminant validity (Hair *et al.*, 2014; Hair *et al.*, 2011; Henseler *et al.*, 2009).



Source: Computed from Field Survey (2022) using SPSS Version 22 and Smart-Pls 3

Fig 1: Measurement Model

Individual Item Reliability

Individual item reliability was assessed by examining the outer loadings of each construct's measure (Duarte & Raposo, 2010; Hair *et al.*, 2014). Following the rule of thumb for retaining items with loadings between 0.40 and 0.70 (Hair *et al.*, 2014), it was discovered that out of 28 items, none were deleted because they presented loadings above the threshold of 0.40.

Internal Consistency Reliability

Internal consistency reliability refers to the extent to which all items on a particular (sub) scale are measuring the same concept (Gotz, Liehr-Gobbers, & Krafft, 2010)^[52]. Cronbach's alpha coefficient and composite reliability coefficient are the most commonly used estimators of the internal consistency reliability of an instrument (Gotz, *et al.*, 2010). In this study, composite reliability coefficient was chosen to ascertain the internal consistency reliability of measures adapted. The main reason that justified the use of composite reliability coefficient is that it provides a much less biased estimate of reliability than Cronbach's alpha

coefficient because the later assumes that all items contribute equally to its construct without considering the actual contribution of individual loadings (Gotz *et al.*, 2010).

Convergent Validity

According to Hulland (1999), individual reliability is the process of assessing loading of the multiple items in relations to their respective construct of the study. The items of a particular construct are expected to be consistent in measuring the proposed construct, while achieving reliability and validity explained that the items are free from random errors and systematic errors (Hair *et al.*, 2013). The individual item reliability was assessed using their individual loadings, obtained from PLS algorithm result. Researchers argued that latent variable should explain at least 50% of the variance in the observed variable shared with the construct (Henseler *et al.*, 2009). There exist various positions in the literature (Churchill & Iacobucci, 2004; Hulland, 1999) on the threshold or rule of thumb regarding individual item reliability. However, majority of scholars agreed on loadings between 0.4 and 0.7 (Hair *et al.*, 2013).

Table 6: Loadings, Composite reliability and Average Variance extracted

	Factor loadings	Composite reliability (pc)	Average variance Extracted	Cronbach Alpha
Participation in Takaful		0.905	0.585	0.909
IITP1	0.895			
IITP2	0.794			
IITP3	0.849			
IITP4	0.904			
IITP5	0.675			
IITP6	0.643			
IITP7	0.502			
Open formal bank accounts		0.926	0.432	0.926
OBFA1	0.811			
OBFA2	0.722			
OBFA3	0.736			
OBFA4	0.819			
OBFA5	0.840			
OBFA6	0.844			
OBFA7	0.824			
Qardul-hasan scheme		0.853	0.432	0.862
QH1	0.460			
QH2	0.621			
QH3	0.537			
QH4	0.524			
QH5	0.556			
QH6	0.705			
QH7	0.860			
QH8	0.869			
Saving habit		0.884	0.561	0.885
SH1	0.803			
SH2	0.755			
SH3	0.715			
SH4	0.701			
SH5	0.772			
SH6	0.743			

Source: Computed from Field Survey (2020) using SPSS Version 22 and Smart-PLs 3

Table 6 show that the entire items factor loadings exceed the yardstick of 0.4 as requested by (Hair *et al.*, 2013), hence no need of any item deletion, in case of Composite reliability a lantern variable should explain at least 0.5 of the variance in the observed variable shared with the construct, all the lantern variable of the study revealed reliability of >0.5, therefore the reliability is achieved, while the average variance extracted

value of the lantern variable have exceed the threshold of >0.4. Cronbach alpha value of all variables of the study exceeds the yardstick of 0.6.

Discriminant Validity

Discriminant validity refers to the extent to which a particular latent construct is different from another latent variable

(Duarte & Raposo, 2010). In the present study, Discriminant validity was determined following Chin’s (1998) criterion, by

comparing the indicator loadings with other reflective indicators in the cross loadings.

Table 7: Cross Loadings

	Qardul-hasan _scheme	Open Bank _Accounts	Participation in Takaful	saving habit
IITP1	0.633	0.756	0.895	0.789
IITP2	0.562	0.630	0.794	0.751
IITP3	0.601	0.681	0.849	0.795
IITP4	0.640	0.690	0.904	0.706
IITP5	0.478	0.648	0.675	0.662
IITP6	0.455	0.585	0.643	0.606
IITP7	0.355	0.493	0.502	0.498
OBFA1	0.688	0.811	0.678	0.675
OBFA2	0.612	0.722	0.715	0.704
OBFA3	0.624	0.736	0.605	0.703
OBFA4	0.694	0.819	0.676	0.821
OBFA5	0.712	0.840	0.689	0.801
OBFA6	0.715	0.844	0.662	0.809
OBFA7	0.699	0.824	0.693	0.866
QH1	0.460	0.362	0.366	0.376
QH2	0.621	0.533	0.432	0.518
QH3	0.537	0.455	0.358	0.465
QH4	0.524	0.467	0.305	0.470
QH5	0.556	0.466	0.415	0.449
QH6	0.705	0.564	0.544	0.583
QH7	0.860	0.745	0.576	0.726
QH8	0.869	0.747	0.633	0.697
SH1	0.668	0.832	0.676	0.803
SH2	0.628	0.758	0.601	0.755
SH3	0.595	0.751	0.616	0.715
SH4	0.583	0.670	0.696	0.701
SH5	0.643	0.648	0.711	0.772
SH6	0.619	0.656	0.770	0.743

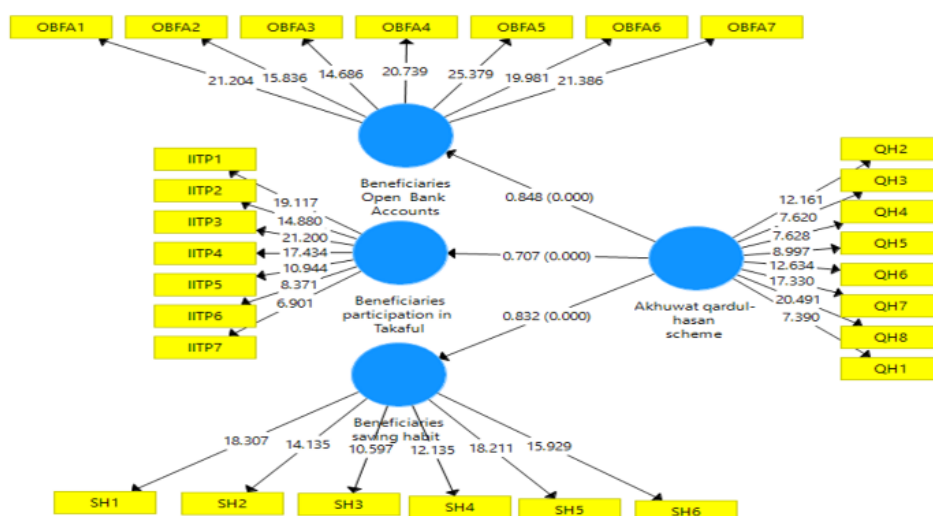
Source: Computed from Field Survey (2022) using SPSS Version 22 and Smart-Pls 3

In Table 7, the correlations among the latent variables were compared with the square root of the average variances extracted (values in bold face). Table 7 also shows that the square root of the average variances extracted were all greater than the correlations among latent constructs, suggesting adequate discriminant validity (Fornell & Larcker, 1981).

Structural Model Assessment

The validity of the outer model (measurement model) gives room for evaluating the inner (structural) model (Henseler *et*

al., 2009). The structural model is concerned about R², coefficient and P-value by way bootstrapping (Hair *et al.*, 2013). Additionally, the model predictive relevance (Q²), as well as the effect size (F²) of each variable, was explained by the structural model. The inner model is to evaluate the significance of loadings and paths coefficient that exists between variables (Barclay *et al.*, 1995). Specifically, the structural model is aimed at model evaluation, as well as, an examination of the regression and correlation assumption between the variables of the study.



Source: Computed from Field Survey (2022) using SPSS Version 22 and Smart-Pls 3

Fig 2: Structural Model

Direct Relationship

Table 8: Results of Direct Hypotheses

Relationship	Beta	P-Value	Findings
QH -> OBFA	0.848	0.000	Supported
QH -> IITP	0.707	0.000	Supported
QH -> SH	0.832	0.000	Supported

Note: ***Significant at 0.01 (two-tailed)

Source: Computed from Field Survey (2022) using SPSS Version 22 and Smart-Pls 3

Figure 2 provides the graphical display of the standardized path coefficient (β) and P- values of the hypothesis in this study. Table 8 provides standardized path coefficient (β) and P-values as suggested by Cho and Abe (2013).

Test of Hypotheses

Hypothesis 1 postulates that Akhwat *Qardul-hasan* does not significantly increase the tendency of the beneficiaries to obtain formal bank accounts. The result revealed a coefficient of ($\beta = 0.848$) and the relationship is significant because the probability or significant value is less than yardstick of 0.05 i.e. ($P=0.000$), hence, we reject the null hypothesis.

Hypothesis 2 postulates that Akhwat *Qardul-hasan* does not significantly enhance the beneficiaries to participate in

Islamic insurance (*Takaful*). The result revealed a coefficient of ($\beta=0.707$) the probability or significant value do not exceed the yardstick of 0.05 i.e. ($P=0.000$), hence, we reject the null hypothesis.

Hypothesis 3 postulates that Akhwat *Qardul-hasan* does not significantly improve the saving habit of the beneficiaries. The result revealed a coefficient of ($\beta=0.832$) the relationship is significant because the probability or significant value do not exceed the yardstick of 0.05 i.e. ($P=0.000$), hence, we reject the null hypothesis.

Assessment of Variance Explained in the Dependent Latent Variables

Another important criterion for assessing the structural model in PLS-SEM is the R-squared value, which is also known as the coefficient of determination (Hair *et al.*, 2012). The R-squared value represents the proportion of variation in the dependent variable(s) that can be explained by one or more independent variable (Hair *et al.*, 2010). Although the acceptable level of R² value depends on the research context (Hair *et al.*, 2010), an R-squared value of 0.10 is a minimum acceptable level. Meanwhile, Chin (1998) suggests that the R-squared values of 0.67, 0.33, and 0.19 in PLS-SEM can be considered as substantial, moderate, and weak, respectively. Table 9 presents the R-squared values.

Table 9: Variance Explained in the dependent Variables

Variable	R Square (R ²)
Open Bank Accounts	72%
Participation in <i>Takaful</i>	50%
Saving habit	69.3%

Source: Computed from Field Survey (2022) using SPSS Version 22 and Smart-Pls 3

First Model

The results in Table 9 of the R squared indicate that it is estimated that the predictor (i.e., Akhwat *Qardul-hasan*) explain (0.72 = 72 percent) of variance in the dependent variable open bank account. In other words, the error variance of open bank account is approximately (0.28= 28 percent), this signifies that Akhwat *Qardul-hasan* scheme influences the opening bank account of the beneficiaries by 72 percent while other 28 percent changes are caused by other variables that are not stated in the model which are represented by the error term.

Second Model

The results in Table 9 of the R squared indicate that it is estimated that the predictor (i.e., Akhwat *Qardul-hasan*) explain (0.50 = 50 percent) of variance in the dependent variable Participation in *Takaful*. In other words, the error variance of Participation in *Takaful* is approximately (0.50= 50 percent), this signifies that Akhwat *Qardul-hasan* scheme influences the Participation in *Takaful* of the beneficiaries by 50 percent while other 50 percent changes are caused by other variables that are not stated in the model which are represented by the error term.

Third Model

The results in Table 9 of the R squared indicate that it is estimated that the predictor (i.e., Akhwat *Qardul-hasan*) explain (0.693 = 69.3 percent) of variance in the dependent variable Saving habit. In other words, the error variance of Saving habit is approximately (0.307= 30.7 percent), this signifies that Akhwat *Qardul-hasan* scheme influences the Saving habit of the beneficiaries by 69.3 percent while other 30.7 percent changes are caused by other variables that are not stated in the model which are represented by the error term.

Assessment of Effect Size (F²)

Effect size indicates the relative effect of a particular independent variables on dependent variable by means of changes in the R-squared (Chin, 1998). It is calculated as the changes in R-squared of the variable to which the path is connected, (Chin, 1998). Cohen (1988) describes F² values of 0.02, 0.15 and 0.35 as having weak, moderate and strong effects respectively. Table 4.9 shows the respective effect sizes of the independent latent variables of the structural model.

Table 10: Effect Sizes of the Independent Latent Variables on Cohen's (1988) Recommendation

Independent variable	Dependent variable	F ²	Effect size
<i>Qardul-hasan</i> scheme	Open Bank Accounts	2.551	Strong
<i>Qardul-hasan</i> scheme	Participation in <i>Takaful</i>	1.002	Strong
<i>Qardul-hasan</i> scheme	Saving habit	2.255	Strong

Source: Computed from Field Survey (2022) using SPSS Version 22 and Smart-Pls 3

From the result displayed in Table 10, it could be deduced that all the variables have some exploratory power towards the dependent variables. Specifically, *Qardul-hasan* scheme has a strong effect on dependent variables namely, open bank account, participation in *Takaful* and saving habit.

Assessment of Predictive Relevance

The study also applied Stone-Geisser Test of predictive relevance of the research model using blindfolding procedures (Geisser, 1974; Stone, 1974). Hence, because the dependent variable was reflective in nature, a blindfolding procedure was applied mainly to this dependent variable. In particular, a cross-validated redundancy measure (Q^2) was applied to assess the predictive relevance of the research model (Chin, 2010; Geisser, 1974; Hair *et al.*, 2013). According to Henseler *et al.*, (2009), a research model with Q^2 statistic (s) greater than zero is considered to have predictive relevance. They added that a research model with higher positive Q^2 values suggests more predictive relevance. Table 4.10 presents the results of the cross-validated redundancy Q^2 test.

Table 11: Construct Cross-Validated Redundancy

Total	SSO	SSE	$Q^2(=1-SSE/SSO)$
Open Bank Accounts	2,100.000	1,309.773	0.376
Participation in Takaful	2,100.000	1,602.092	0.237
Saving habit	1,800.000	1,225.553	0.319

Source: Computed from Field Survey (2019) using SPSS Version 22 and Smart-Pls 3

First Model

As shown in Table 11, the cross-validation redundancy measure Q^2 for the dependent that is, open bank account variable is above zero, hence, suggesting predictive relevance of the first model.

Second Model

As shown in Table 11, the cross-validation redundancy measure Q^2 for the dependent that is, participation in *Takaful* variable is above zero, hence, suggesting predictive relevance of the first model.

Third Model

As shown in Table 11, the cross-validation redundancy measure Q^2 for the dependent that is, saving habit variable is above zero, hence, suggesting predictive relevance of the first model.

Discussion of Results

Hypothesis one postulates that Akhwat *Qardul-hasan* does not significantly increase the tendency of the beneficiaries to obtain formal bank accounts. The result revealed significant relationship between Akhwat *Qardul-hasan* and open bank account ($\beta=0.848$, $P>0.000$), hence we accept the alternative hypothesis, because the P-value is less than 0.05. This finding is consistent with the previous findings Shafique *et al.* (2020), Humera (2020), and Imrab *et al.* (2018)

Hypothesis two postulates that Akhwat *Qardul-hasan* does not significantly enhance the beneficiaries to participate in Islamic insurance (*Takaful*). The result of the study also revealed that Akhwat *Qardul-hasan* has a significant impact on participation in Islamic insurance (*Takaful*) ($\beta=0.707$, $P=0.000$). Hence, we accept the alternative hypothesis, because the P-value is less than 0.05. This finding is

consistent with the previous findings of Ghazala, Yasir, Yunkai, Abdul, Asif, Yacong, Caihong and Liuyan (2020), and Juliana (2016)

Hypothesis three postulates that Akhwat *Qardul-hasan* does not significantly improve the saving habit of the beneficiaries. The result of the study revealed that Akhwat *Qardul-hasan* have a significant effect on saving habit of the beneficiaries. ($\beta = 0.187$, $P=0.000$), hence we accept the alternative hypothesis, because the P-value is less than 0.05. This finding is consistent with the previous findings of Humera (2020), Zulkhibr (2015) and Abdur-Razaq *et al.* (2017).

Table 6: Convergent Validity Loadings, Composite reliability and Average Variance extracted

The provided information includes factor loadings, composite reliability (pc), average variance extracted, and Cronbach's alpha for different constructs: Participation in Takaful, Open formal bank accounts, *Qardul-hasan* scheme, and Saving habit.

(a) Participation in Takaful:

1. Factor Loadings: The factor loadings for the indicators IITP1, IITP2, IITP3, IITP4, IITP5, IITP6, and IITP7 on the Participation in Takaful construct range from 0.502 to 0.904. These values indicate the strength of the relationship between the indicators and the construct. Higher values suggest a stronger association.
2. Composite Reliability (pc): The composite reliability for the Participation in Takaful construct is 0.905, indicating high internal consistency or reliability of the measured indicators.
3. Average Variance Extracted: The average variance extracted for the Participation in Takaful construct is 0.585, suggesting that approximately 58.5% of the variance in the measured indicators is accounted for by the construct.
4. Cronbach's Alpha: The Cronbach's alpha coefficient is 0.909, indicating strong internal consistency among the items measuring Participation in Takaful.

(b) Open formal bank accounts

1. Factor Loadings: The factor loadings for the indicators OBFA1, OBFA2, OBFA3, OBFA4, OBFA5, OBFA6, and OBFA7 on the Open formal bank accounts construct range from 0.722 to 0.844. These values indicate a strong association between the indicators and the construct.
2. Composite Reliability (pc): The composite reliability for the Open formal bank accounts construct is 0.926, indicating high internal consistency among the measured indicators.
3. Average Variance Extracted: The average variance extracted for the Open formal bank accounts construct is 0.432, suggesting that approximately 43.2% of the variance in the measured indicators is explained by the construct.
4. Cronbach's Alpha: The Cronbach's alpha coefficient is 0.926, indicating strong internal consistency among the items measuring Open formal bank accounts.

(c) Qardul-hasan scheme

1. Factor Loadings: The factor loadings for the indicators QH1, QH2, QH3, QH4, QH5, QH6, QH7, and QH8 on the *Qardul-hasan* scheme construct range from 0.460 to 0.869. These values suggest a moderate to strong

- association between the indicators and the construct.
2. Composite Reliability (pc): The composite reliability for the Qardul-hasan scheme construct is 0.853, indicating good internal consistency among the measured indicators.
 3. Average Variance Extracted: The average variance extracted for the Qardul-hasan scheme construct is 0.432, suggesting that approximately 43.2% of the variance in the measured indicators is accounted for by the construct.
 4. Cronbach's Alpha: The Cronbach's alpha coefficient is 0.862, indicating good internal consistency among the items measuring Qardul-hasan scheme.

(d) Saving habit

1. Factor Loadings: The factor loadings for the indicators SH1, SH2, SH3, SH4, SH5, and SH6 on the Saving habit construct range from 0.701 to 0.803. These values indicate a moderate to strong association between the indicators and the construct.
2. Composite Reliability (pc): The composite reliability for the Saving habit construct is 0.884, indicating good internal consistency among the measured indicators.
3. Average Variance Extracted: The average variance extracted for the Saving habit construct is 0.561, suggesting that approximately 56.1% of the variance in the measured indicators is explained by the construct.
4. Cronbach's Alpha: The Cronbach's alpha coefficient is 0.885, indicating good internal consistency among the items measuring Saving habit.

Therefore, the constructs show good internal consistency, as indicated by high composite reliability values and Cronbach's alpha coefficients. The average variance extracted values suggest that a substantial portion of the variance in the measured indicators is accounted for by the constructs.

Table 7: Discriminant Validity Cross Loadings

Cross loadings are used to assess the relationship between each indicator and its corresponding construct in a confirmatory factor analysis. They provide insights into the extent to which an indicator loads on its intended construct compared to other constructs. Here is a discussion of the cross loadings presented in the table:

- (a) Qardul-hasan scheme: The indicators IITP1, IITP2, IITP3, IITP4, IITP5, IITP6, and IITP7 exhibit moderate to high cross loadings on the Qardul-hasan scheme construct. This suggests that these indicators have significant relationships with other constructs as well, indicating the potential for some shared variance or ambiguity in their measurement. Nevertheless, the indicators captured the intended construct and have minimal relationships with other constructs.
- (b) Open Bank Accounts: The indicators OBFA1, OBFA2, OBFA3, OBFA4, OBFA5, OBFA6, and OBFA7 show high cross loadings on the Open Bank Accounts construct. This suggests that these indicators are primarily capturing the intended construct and have minimal relationships with other constructs.
- (c) Participation in Takaful: The indicators QH1, QH2, QH3, QH4, QH5, QH6, QH7, and QH8 exhibit moderate cross loadings on the Participation in Takaful construct. This indicates that these indicators may have some level of association with other constructs.

- (d) Saving habit: The indicators SH1, SH2, SH3, SH4, SH5, and SH6 show moderate to high cross loadings on the Saving habit construct. This suggests that these indicators are primarily related to the intended construct but may also have some association with other constructs.

However, it is important to note that while some indicators demonstrate high cross loadings on their intended construct, there are instances where indicators show moderate cross loadings on other constructs as well.

Conclusion

Based on the findings, the study concluded that *Akhuwat Qardul-Hasan* contributed significantly to the Financial Inclusion of its beneficiaries. However, Financial inclusion is the provision of, and access to, financial services to all members of population particularly the poor and the other excluded members of the population. Financial access is especially an issue for the poorer members of society including potential, or would be, entrepreneurs. They are commonly referred to as "un-bankable" or "non-bankable" and in the case of potential entrepreneurs they invariably lack adequate collateral to access conventional debt financing. Also, the inferential statistics formulated were statistically tested on the role of *Akhuwat Qardul-Hasan* in enhancing Financial Inclusion; a case study of *Akhuwat*, Pakistan. All the research objectives and questions were raised and have been achieved. Therefore, based on the findings of this study, it was concluded that *Akhuwat Qardul-hasan* has a significant role in enhancing the Financial Inclusion of its beneficiaries in Lahore, Pakistan.

Recommendations

Based on the findings of this research, the following recommendations were made:

1. Given to the fact that Financial Inclusion primarily targets the vulnerable groups of the society such as the poor, rural settlers, illiterates etc., the study therefore, recommends that *Qardul-Hasan* facility guidelines, rules and regulations should be devoid of jargons, advanced grammars and excessive formalities in order not to scare and drive away the clients from the facility and thus, leading to increased rate of financial exclusion.
2. Since, the *Qardul-Hasan* (micro-credit) is an interest free facility based on benevolence. The study recommends that Institutions and organizations should avoid any form of charges as this may lead to indirect interest and thus, resulting to financial exclusion.
3. The fact that *Akhuwat Qardul-hasan* is a non-governmental micro-credit, the study recommends that making Government to Person (G2P) by Pakistani government vis-avis social cash transfer payments into the formal account of poor people, young people, women, and elderly people may encourage other poor people, young people, women, and elderly people to join the formal financial sector to own a formal account to take advantage of the G2P social cash transfer benefits, thereby, increasing the rate of financial inclusion for vulnerable groups.
4. Non-profit based microfinance organizations should channel most of their loans and products to rural environments as this will encourage entrepreneurship, enhance financial inclusion as well as poverty

- alleviation.
5. Micro-finances that are *Shariah* compliant should make sure that the implementation of *Qardul-Hasan* is closely monitored because of its religious obligation of wealth circulation.
 6. The government should come up with scholarships, grants, sponsorship and programmes that will enable researchers, scholars, and practitioners in providing synergy and enabling ground that will promote Islamic Finance and Financial Inclusion.

Suggestions for Further Research

Since, Financial Inclusion is a phenomenon with a global concern, further researches should be conducted in the area by widening the scope and incorporating more relevant variables with literature backing. In addition, different methodologies may also be employed in order to address the issues in a more holistic and all-encompassing approach.

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