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Liquidity Creation by Conventional Banks in Pakistan

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Abstract

Conventional banks create liquidity in the economy by facilitating investments and savings. Conventional banks create liquidity by utilizing the on & off-balance sheet items and handling their asset and liability portfolios of different maturities. The current study estimated the volume of liquidity created by conventional banks utilizing the "Catfat" model (Berger & Bouwman, 2009). The yearly sample data was gathered from 2000 to 2021; the secondary data source is Thomson Reuter's financial data stream. The study has taken a sample from all the conventional banks registered on Pakistan Stock Exchange. Findings suggest that the conventional banks in Pakistan created liquidity in the economy of around 7.05 Trillion Rupees in 2021 and around 0.33 Trillion Rupees in 2000. It was found that Habib Bank Limited made the most contribution in 2021, i.e., 1156 Billion Rupees 2021, and the SAMBA Bank created the least liquidity, i.e., 47 Billion Rupees. It is concluded that the conventional banks in Pakistan play an essential role by creating liquidity in the market to boost the economy. It is recommended that different factors, such as corporate governance, capital, and monetary policy, can affect liquidity creation in Pakistan. Further research can examine the influence of these factors on liquidity creation.

Keywords: liquidity creation, conventional banks, corporate governance, catfat model

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1. INTRODUCTION:

A healthy financial system view as a catalyst for economic expansion. Banks help savers and investors by channeling savings from those who have excess money to those who require it. The bank's primary function is to create liquidity in the market by settling regular economic transactions and supporting the payment system. Diamond and Dybvig (1983) first defined the term liquidity creation. It is an approach by which banks fund illiquid

assets with liquid liabilities. In other words, a conventional bank's capability to create liquidity allows it to pay dues. For instance, a bank may issue demand deposits that borrowers can call-off at any time and provide them with lending facilities committed for a set period. The bank helps depositors and borrowers by providing liquidity on the liability side and the assurance of illiquidity on the asset side (Deep & Schaefer, 2004). Banks create economic value by acting as liquidity converters by facilitating smooth consumption and uninterrupted output. Liquidity creation has a direct effect on the economic development of a country (Bouwman, 2013).

According to the Quantitative Asset Transformation Function, banks perform two critical roles, i.e., risk transformation & liquidity creation. Conventional banks transform risk by backing up risky illiquid loans by issuing riskless liquid deposits. On the contrary, conventional banks create liquidity by investing in illiquid assets utilizing liquid liabilities. Calculating the notional volume of liquidity creation is a research issue of interest because it is a fundamental task performed by banks. However, only two studies have been conducted on estimating liquidity creation by banks in Pakistan. Various concepts have been put forth in theoretical literature to quantify the financial worth of the liquidity created by conventional banks. The researcher emphasized the asset side of the balance sheet, while others appraised the liabilities' relevance. Deposit-taking by banks is a significant operation on the liabilities side of the balance sheet (Diamond & Dybvig, 1983).

On the Contrary, Deep and Schaefer (2004) evaluated the significance of the balance sheet's asset and liability sides in liquidity production. Furthermore, Kashyap et al. (2002) hypothesized that off-balance sheet things like advance agreements and equivalent claims on a bank's liquid funds might also help create liquidity. Among the most recent, Berger and Bouwman (2009) developed four measuring tools of liquidity creation specifically for the United States of America financial institutions. These include all the items of the on-balance sheet items (loans, deposits, other assets & liabilities) and off-balance sheet items (promises, guarantees, & derivatives). By utilizing these four methods, researchers estimate the notional level of liquidity creation. They differ in how assets are categorized and whether off-balance sheet items are included or excluded.

The economic literature works to establish connections between liquidity creation and important policy variables like inflation, unemployment, and investment. However, because it includes all balance sheet items, calculating the estimated level of liquidity creation is regarded as the most suitable indicator of overall bank production. Liquidity creation is a significant determinant of per capita GDP and refrain from elucidating the economic results (Berger & Sedunov, 2016).

Although liquidity creation positively impacts economic growth, excessive liquidity creation may jeopardize the financial system's ability to remain solvent. Banks must cope with several significant challenges during the liquidity creation process, such as maturity

mismatches among assets and obligations, early withdrawal of deposits, & information asymmetries. Banks could jeopardize their stability and subject themselves to numerous risks. By converting short-term obligations into long-term loans, a bank may increase the market's liquidity while simultaneously making its balance sheet more volatile. The opposite may be true for another bank, which struggled to create liquidity but has a reasonably liquid balance sheet. In the first situation, banks increase market liquidity while also taking on more risk. On the contrary, banks reduce market liquidity while taking less risk on their balance sheet (Spierdijka et al., 2018; Tarchouna et al., 2017).

One of these two situations could affect the economic system when banks refused to fund advances of long-term projects to increase their solvency and vice versa. The entire banking sector may be exposed to increased risk if most of its asset portfolio comprises long-term, illiquid loans and investments (Thakor, 2005; Tran, 2020). The research aim is to measure the volume of liquidity created by conventional banks in Pakistan and to identify whether the liquidity creation function of banks contributes to economic development.

1.1. Problem Statement:

The banks perform two critical economic functions: risk transformation and liquidity creation. Thorough literature is available regarding the risk transformation function of banks; however, limited literature is available on the liquidity creation function of conventional banks in Pakistan, which is relatively new. It is essential to measure whether the banks are creating liquidity in the market, as it is the primary function of banks that contributes to the country's economy.

1.2. Research Questions:

Limited literature is available regarding the liquidity creation function of banks; the said topic is relatively new. However, there is limited empirical literature available in the context of Pakistan. The absence of proper action raised concerns about the nation's banking sector's ability to create liquidity in the economy. Several questions need to be answered, what is the amount of liquidity created by banks in Pakistan? Which bank creates the most liquidity & vice versa?

1.3. Research Objectives:

The research aim is to measure liquidity creation by banks in Pakistan. The above-mentioned research question led the researcher to achieve the following research objective: To measure how much the banking sector creates liquidity in Pakistan and to identify which banks create the most liquidity in the market.

1.4. Significance of the Study:

The study's primary purpose is to estimate the notional amount of liquidity created by banks in Pakistan by utilizing liquid liabilities to finance illiquid business assets for operations and foster economic growth. Banks may face liquidity risk, forcing them to liquidate productive assets early and disrupting

economic activity. As a result, bank liquidity creation or transformation is a double-edged sword and an important topic that requires careful attention. The study aims to measure the quantity of liquidity created by Conventional Banks in Pakistan.

1.5. Research Scope

The focus of this research study is on the conventional banks of Pakistan. The research scope is limited to measuring the volume of liquidity created by banks in Pakistan using the Berger and Bouwman (2009) measurement model of liquidity creation. The amount of liquidity creation by conventional banks has to be moderate, as the excess amount of liquidity creation can badly affect the country's economy and vice versa.

1.6. Organization of the Study:

The rest of this study is divided into five sections. The development of liquidity creation measures is discussed in the next section in the context of previous research. The data set of Pakistani banks from June 2000 to December 2021 is briefly discussed. Section 3 discusses and measures the quantity of liquidity created by conventional banks in Pakistan; how different individual banks have contributed to market liquidity over time. Section 4 is a discussion, and section 5 is the conclusion/recommendations.

2. LITERATURE REVIEW:

2.1. Theoretical Background:

According to the Quantitative Asset Transformation Function, banks perform two critical roles, i.e., risk transformation and liquidity creation. Banks transform risk by financing risky illiquid loans by issuing riskless liquid deposits. On the contrary, conventional banks create liquidity by investing in illiquid assets utilizing liquid liabilities.

Deep and Schaefer (2004) developed a model for measuring banks' liquidity creation. They measured the amount of liquidity created by banks in the United States of America by taking a sample from the 200 largest US banks. The liquidity of a bank's assets and liabilities are two different things. Deep and Schaefer (2004) developed a Liquidity Transformation (LT) Gap, which measures the difference between liquid liabilities and liquid assets as a proportion of total assets (or LT Gap). They claim that LT Gap represents a bank's net amount of liquidity transformation relative to its total assets. Loan commitments and other off-balance sheet operations were explicitly omitted from the computation of the LT Gap due to their contingent character.

One of the most extensively utilized comprehensive models for examining the measurement of the liquidity creation function of US banks was developed by Berger and Bouwman (2009). They criticized the developed model of Deep and Schaefer (2004). Argues that there are a few essential contrasts between their approach and Deep and Schaefer (2004). The first significant difference was that Berger and Bouwman (2009) included all Conventional Banks rather than only the biggest banks in the model. Second, loans were categorized by category rather than maturity, their desired metric. Finally, they included off-balance sheet

operations in their recommended measurements.

Four measures of liquidity creation created by Berger and Bouwman (2009) include "cat fat," "mat fat," "cat nonfat," and "mat nonfat." The current study will use the "cat fat" model as the researchers preferred it. The building process consists of three steps. In the first stage, all on-balance sheet and off-balance sheet activities are distributed into three categories: liquid, illiquid, and semi-liquid. For instance, the ease with which banks can promptly liquidate their assets without suffering a significant loss to their values determines whether those assets are categorized as liquid, semi-liquid, or illiquid. Based on how easily depositors can withdraw their money without paying a fee, banks' liabilities and equity are divided into three categories: liquid, semi-liquid, and illiquid. Off-balance sheet guarantees are categorized consistently with how functionally identical on-balance sheet goods are treated.

All items on-balance-sheet (Assets, Liabilities, & Equities) and off-balance-sheet (Contingencies & Commitments) are categorized based on ease, cost, and time, whether liquid, illiquid, & semi-liquid. Table 1 thoroughly explains the categorization of assets, liabilities, equities, and contingencies & commitments by category.

Table 1 shows that the loans, property/plant/equipment, intangibles, other long-term assets, and other assets are classified as illiquid assets, and no semi-liquid assets are identified. Liquid assets include cash & due from banks and other earning assets. Liquid liabilities include accounts payable, payable/accrued, accrued expenses,

Table 1: Classification of bank activities and weight of classified groups

Illiquid Assets (Weigh = +1/2)	Semi-Liquid Assets (Weigh = 0)	Liquid Assets (Weigh = -1/2)
Loans Property/Plant & Equipment Intangibles Other Long Term Assets Other Assets		Cash & Due from Banks Other Earning Assets
Liquid Liabilities (Weigh = +1/2)	Semi-Liquid Liabilities (Weigh = 0)	Illiquid Liabilities (Weigh = -1/2)
Accounts Payable Payable/Accrued Accrued Expenses Deposits Short Term Borrowings Other Current Liabilities	Other Bearing Liabilities	Long-Term Debt Deferred Income Tax Other Liabilities
Liquid Equity (Weigh = +1/2)	Semi-Liquid Equity (Weigh = 0)	Illiquid Equity (Weigh = -1/2) Capital Reserves Unappropriated Profits
Illiquid Guarantees (Weigh = +1/2)	Semi-Liquid Guarantees (Weigh = 0)	Liquid Guarantees (Weigh = -1/2)
Commitments Direct Credit Substitute	Guarantees	

deposits, short-term borrowings, and other current liabilities. Other bearing liabilities are classified as semi-liquid liabilities. Illiquid liabilities and equities include long-term debt,

deferred income tax, other liabilities, capital, reserves, and un-appropriated profits, as mentioned in table 1. The above classification of bank activities and the weight of classified groups are allotted as recommended by (Berger & Bouwman, 2009).

Kashyap et al. (2002) justify including off-balance sheet activities in the development of liquidity creation estimate tools by arguing that banks may also create significant amounts of liquidity off-balance sheet through loan commitments and similar claims to liquid funds. Commitments and alternatives to direct credit are seen as illiquid guarantees. These items are functionally comparable to on-balance-sheet business loans because they constitute commitments (Berger & Bouwman, 2009). After categorization, masses are assigned to all on & off-balance sheet activities. Conventional banks create liquidity by providing long-term loans or illiquid advances in exchange for liquid deposits. Following this notion, positive weights are specified for liquid liabilities and illiquid assets; liquidity is created anytime the latter is used to finance the former (Berger & Bouwman, 2009).

The amount of the weights is based on the supposition that limitations are added up, i.e., when the bank converts 1 unit of liquid debt into 1 unit of illiquid assets, 1 unit of liquidity is created (Berger & Bouwman, 2009). In contrast, liquidity is reduced by one unit when one unit of a liquid asset is used to finance one unit of an illiquid liability. Based on this justification, they gave both liquid and illiquid assets and liabilities a weight of +1/2 and a weight of -1/2, respectively. Semi-liquid assets and liabilities are given a weight of 0, as none of their actions contribute to liquidity creation. For equities and similar off-balance sheet activities applying intuition, off-balance sheet operations are given a weight of +1/2, and equity is given a weight of -1/2.

Sabahat (2017) estimated the liquidity created by banks in Pakistan by adopting the measurement tool of liquidity creation researchers (Berger & Bouwman, 2009). The researcher collected the data from September 2007 to June 2016 and categorized the banks into different groups, i.e., large, medium, & small. The data were collected quarterly from the Conventional Banks in Pakistan. The researcher estimated that the banks in Pakistan created liquidity of 2.55 Trillion Rupees in the economy of Pakistan.

Ilyas and Sarwar (2018) study the influence of capital on liquidity creation in Pakistan. Researchers collect data from Conventional Banks in Pakistan from 2004 to 2013. Ilyas and Sarwar (2018) also categorized the banks into three groups, i.e., Large, Medium, & Small, and they used the Generalized Least Square Method for analysis. However, the study findings concluded that the bank's governance positively impacts liquidity creation. The firm size harms liquidity creation. Shoaib (2021) conduct his study on the antecedents of liquidity creation by taking samples from different countries. Yeddou et al. (2020) identify that the ownership structure affects liquidity creation, and decision-making by the top management affects the overall company performance. However, poor decision-making

leads the organization toward bank failure (Zhao, 2010; Zheng et al., 2019).

The study aims to measure the amount of liquidity created by Conventional Banks in Pakistan. The used metric was developed by Berger and Bouwman (2009) by merging various elements relevant to on- and off-balance sheet banking industry activity to measure the amount of liquidity created by Conventional Banks. The study uses annual bank balance sheet data from January 2000 to December 2021. Once the liquidity creation's actual amount is calculated, the study will examine how liquidity fluctuates between the various banking organizations and the trend of liquidity creation in the past 20 years. The "Catfat" model of Berger and Bouwman (2009), which has three stages, assesses the liquidity produced by banks in Pakistan. Step 1 entails classifying all on & off-balance sheet activities as liquid, semi-liquid, or illiquid based on price, convenience of use, and time, as well as how quickly banks and clients can raise capital and break agreements. Step 2 assigns different weights to the activities listed in step 1, which may be +1/2, 0, or -1/2, depending on the liquidity feature associated with the particular movement. To estimate the amount of liquidity creation, all the outcomes are merged in step 3.

2.2. Data, Measurement Tool & Research Design:

An adequate sample has to be selected to answer the research questions. For the analysis, the researcher selected Pakistani Conventional Banks registered in PSX. Moreover, all the registered Conventional Banks on stock exchanges are chosen based on the accessibility of secondary data. The number of Conventional Banks registered on the Pakistan Stock Exchange is 20. The sample consisted of 20 Conventional Banks from 2000 to 2021. The data is gathered from Thomson Reuters' financial data stream, and a secondary sampling design is adopted to precisely refine the decision and model.

The annual data is used to achieve the research objectives. The researcher uses E-views software for the data analysis. The study will base on quantitative data analysis. The quantitative research design led the researcher to adopt the deductive approach.

The researcher collected the data from Thomson Reuter financial data stream and consolidated financial statements of banks. The researcher uses the annual bank report data for analysis purposes. The researcher measures liquidity creation by using the "Catfat" model (Berger & Bouwman, 2009).

Catfat=+(1/2)*IlliquidAssets(0)*SemiLiquidAssets-(1/2)*LiquidAssets
+(1/2)*LiquidLiabilities(0)*SemiLiquidLiabilities+(1/2)*IlliquidLiabilities
+(1/2)*LiquidEquity(0)*SemiLiquidEquity+(1/2)*IlliquidEquity
+(1/2)*IlliquidGuarantees(0)*SemiLiquidGuarantees-(1/2)*LiquidGuarantees

3. LIQUIDITY CREATION BY BANKS IN PAKISTAN

The table below shows liquidity created by Conventional Banks in Pakistan; Liquidity creation is estimated by using the “Catfat” measure of Liquidity Creation Model (Berger &

Bouwman, 2009).

Table 2(a): Liquidity Creation by Conventional Banks in Pakistan

Amount in PKR Billions

Year	ABL	ASBK	BAH	BALF	BIL	BOK	BOP	FYBL	HBL	HMB
2000	-	15	13	12	-	-	3	1	185	4
2001	-	20	14	14	-	-	2	-4	179	5
2002	-	19	12	23	-	4	2	-6	165	8
2003	5	31	27	40	-	4	11	-13	-	14
2004	-19	54	39	74	-	4	30	-14	238	22
2005	-19	77	49	135	-	5	45	-20	289	22
2006	-32	83	57	146	0	3	81	-27	317	40
2007	-37	89	67	141	2	5	101	67	349	43
2008	173	115	87	181	4	9	133	63	430	72
2009	185	116	85	177	16	4	120	64	411	57
2010	209	131	99	193	22	11	130	94	407	77
2011	194	128	54	175	25	14	122	105	396	21
2012	221	132	114	192	29	17	110	135	222	61
2013	195	167	126	216	37	25	160	158	381	83
2014	232	167	147	281	52	27	166	154	465	78
2015	225	195	158	303	103	29	207	150	431	70
2016	222	137	222	181	99	9	218	133	256	82
2017	292	229	280	356	144	71	257	189	720	113
2018	376	309	414	433	143	92	310	268	908	166
2019	425	329	420	352	137	75	323	270	956	190
2020	398	312	412	296	127	113	323	250	938	196
2021	591	385	607	466	179	114	409	354	1,156	285

Table 2(a) shows the liquidity created by Conventional Banks in Pakistan from 2000 to 2021. Allied Bank Limited (ABL) had negative liquidity creation from 2004 to 2007. Since Allied Bank Limited created liquidity in the market in 2008, it created around PKR 173 Billion in liquidity in the economy, and in 2021 Allied Bank Limited created around PKR 591 Billion in liquidity in the economy.

The Askari Bank Limited created around PKR 15 Billion in liquidity in the economy in 2000, and in 2021 it created around PKR 385 Billion in liquidity in the market. The Bank Alfalah Limited created around PKR 607 Billion, Bank Al Habib Limited created PKR 607 Billion, Bank Islami Limited created PKR 179 Billion, Bank of Khyber Limited created PKR 114 Billion, Bank of Punjab Limited created around PKR 409 Billion, Faisal Bank Limited creates around PKR 354 Billion, Habib Bank Limited creates around PKR 1156 Billion and Habib Metropolitan Bank Limited creates PKR 258 Billion liquidity in the economy.

Table 2(b): Liquidity Creation by Conventional Banks in Pakistan

Amount in PKR Billions

Year	JSBL	MCB	MBL	NBP	SAMBA	SCB	SILK	SONER	SUMIT	UBL
2000	-	-63	-	148	-	-	0	13	-	-
2001	-	-87	-	180	-	-	2	11	-	-
2002	-	-137	0	131	-	-	5	12	-	-6
2003	-	-156	6	150	0	-	11	18	-	91
2004	-	-100	10	192	3	-	19	26	-	134
2005	-	-97	17	213	3	-	16	34	-	191
2006	3	163	21	282	2	125	26	34	0	223
2007	8	180	30	291	0	113	21	38	6	270
2008	9	217	36	367	3	121	26	48	12	343
2009	14	203	37	433	5	127	27	44	41	317
2010	16	200	48	422	7	131	39	50	44	290
2011	18	125	65	474	12	139	41	45	70	-117
2012	8	146	77	605	12	117	67	68	33	254
2013	28	168	113	528	13	110	64	89	53	285
2014	14	207	154	526	16	100	48	87	42	333
2015	13	156	185	422	-12	53	74	97	32	337
2016	76	167	265	475	-17	88	77	72	42	227
2017	170	384	371	605	27	112	103	131	105	483
2018	240	453	443	787	39	136	108	148	80	589
2019	234	422	457	895	38	171	136	149	0	477
2020	225	372	467	772	35	118	123	155	63	360
2021	249	515	464	799	47	160	-	158	65	460

Habib Bank Limited created the highest liquidity in 2021 compared to the other banks registered on Pakistan Stock Exchange. On the contrary, the lowest liquidity was created by Samba Bank Limited, around PKR 47 Billion.

Table 2(b) shows the liquidity created by the ten Conventional Banks in Pakistan registered on Pakistan Stock Exchange from 2000 to 2021. The Muslim Conventional Bank (MCB) Limited had negative liquidity creation

from 2000 to 2005. Since then, MCB Limited has created liquidity in the economy in 2006. It created around PKR 163 Billion liquidity in the economy. In 2021, MCB Limited created around PKR 515 Billion liquidity in the economy. The JS Bank Limited created around PKR 3 Billion liquidity in the economy in 2006, and in 2021 it created around PKR 249 Billion liquidity in the market. The Meezan Bank Limited created around PKR 464 Billion, the National Bank of Pakistan created PKR 799 Billion, Samba Bank Limited created PKR 47

Billion, Standard Chartered Bank Limited created PKR 160 Billion, Silk Bank Limited created around PKR 123 Billion, Soneri Bank Limited creates around PKR 158 Billion, Summit Bank Limited creates around PKR 65 Billion and United Bank Limited creates PKR 460 Billion liquidity in the economy. The National Bank of Pakistan created the second-highest liquidity in 2021 compared to the other banks registered on the Pakistan Stock Exchange. On the contrary, Summit Bank Limited created the second-lowest liquidity, around PKR 65 Billion.

Table 3: Overall Liquidity Creation by Conventional Banks in Pakistan from 2000 - 2021

Amount in PKR Trillions

Year	Overall Liquidity Created by Banks in Pakistan
2000	0.33
2001	0.34
2002	0.23
2003	0.24
2004	0.71
2005	0.96
2006	1.55
2007	1.78
2008	2.45
2009	2.48
2010	2.62
2011	2.11
2012	2.62
2013	3
2014	3.29
2015	3.23
2016	3.03
2017	5.14
2018	6.44
2019	6.46
2020	6.05
2021	7.05

Table 3 shows the overall liquidity created by the Conventional Bank in the Pakistan economy from 2000 to 2021. The above liquidity creation is measured using the "Catfat" measure of the Berger and Bouwman (2009) Model of Liquidity creation. Their study recommended & preferred the "Catfat" measurement tool of liquidity creation over other models.

The above-given liquidity creation is estimated by using the recommended model, which shows that the Conventional banks in Pakistan created around PKR 0.33 Trillion in 2000, PKR 0.34 Trillion in 2001, PKR 0.23 Trillion in 2002, PKR 0.24 Trillion in 2003, PKR 0.71 Trillion in 2004, PKR 0.96 Trillion in 2005, PKR 1.55 Trillion in 2006, PKR 1.78 Trillion in 2007, PKR 2.45 Trillion in 2008, PKR 2.48 Trillion in 2009, PKR 2.62 Trillion in 2010, PKR 2.11 Trillion in 2011, PKR 2.62 Trillion in 2012, PKR 3.00 Trillion in 2013, PKR 3.29 Trillion in 2014, PKR 3.23 Trillion in 2015, PKR 3.03 Trillion in 2016, PKR 5.14 Trillion in 2017, PKR 6.44 Trillion in 2018, PKR 6.46 Trillion in 2019, PKR 6.05 Trillion in 2020, and2021 the Conventional banks in Pakistan

created around PKR 7.05 Trillion liquidity in the economy.

Figure 1: Overall Liquidity Creation by Conventional Banks in Pakistan from 2000 – 2021

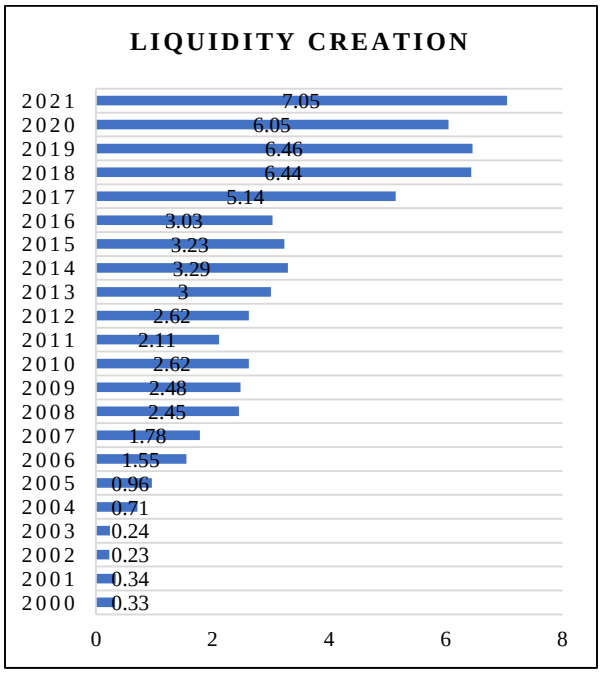

Figure 1 shows that in Pakistan conventional banks create around 0.33 liquidity in the economy in 2000. The least liquidity created by banks in Pakistan was 0.23 in 2002. In 2021 the conventional banks create the most liquidity in the banking history of Pakistan. The above figure shows that the role of conventional banks in the economic growth has become strong day by day. If we see the trend of the liquidity creation over the last twenty years it is increases due to the expansion of the banking industry.

4. DISCUSSION

The potential significance of liquidity generation methods needs to be explored in the emerging economic literature. However, numerous studies discovered them valuable markers of banking system output. These measurements have also been linked to factors affecting the economy, like GDP growth, and performance indicators for the banking industry, like financial crises, the sufficiency of banking capital, and banking failures. Sahyouni and Wang (2019) conducted a study on the influence of banks liquidity on the performance of the conventional banks, which means that the banks' performance depends on liquidity creation.

Berger and Sedunov (2016) established a substantial and positive correlation between per capita liquidity creation and per capita growth, recognizing the prominence of liquidity creation measures to economic growth. The study emphasized the value to the economy of various liquidity-generating mechanisms, including advances, deposits, and investments. Compared to other measures of bank-specific variables, such as total gross assets, total equity, and total liabilities, it was argued that these measures were more effective at calculating per capita GDP. Similar findings were made by Fidrmuc et al. (2015) for the Russian economy's link between GDP and liquidity creation measures.

Although excess liquidity generation has been linked to financial crises, the literature has shown a beneficial relationship between it and overall economic development. An increasing level of liquidity indicates that conventional banks inject too much liquidity while taking deposits of short periods and

extending loans of longer durations, which could raise thoughtful questions about the financial system's ability to function. When discussing the financial crisis that hit the US economy in 2011, Berger and Bouwman (2011) brought this issue to light by stating that accumulated liquidity creation increased before the financial crisis. According to the study, the level of liquidity creation is a strong predictor of financial crises. A "High Liquidity Creation Hypothesis" (HLCH) was established by Fidrmuc et al. (2015), which connected high liquidity creation with bank collapse. The metrics have also been employed as a predictor of bank failure. If the conventional bank tries to create huge amount of liquidity in the economy, the chances that of becoming insovent raises for the banks. The study acknowledged the high liquidity creators as institutions with liquidity creation exceeding 90%. The report suggested a screening process that would evaluate banks based on how much liquidity they had created during a particular quarter.

Liquidity creation helps determine banks' contribution to a country's national income. Study objectives is to examine how creating liquidity affects economic growth, as suggested by the researcher (Sabahat, 2017). This study aimed to investigate whether there is any connection between the value that the banking and finance sector adds to national income. Low savings and high investment generally point to an economy with higher domestic demand, which could lead to inflationary pressures. Although the relationship between liquidity creation & micro/macroeconomic factors has yet to be explored, this study could not investigate meaningful relationships between these crucial macro variables due to some limitations. The literature is still in its infancy when exploring the evocative implication of liquidity creation for the entire economic system, as was previously stated.

5. CONCLUSION & RECOMMENDATIONS

A healthy banking system fosters economic growth by directing savings into profitable investments. Conventional banks perform two crucial roles risk transformation and creating liquidity; the banks create liquidity by facilitating investments and savings. Despite the significance of essential responsibilities in the economy, our nation needed a comprehensive measure of liquidity creation. This research attempted to estimate such metrics, which might provide a more accurate picture of conventional banks' contribution to liquidity creation than conventional measurements. Berger and Bouwman (2019) recommended and preferred the "Catfat" measure of liquidity creation, constructed using a different categorization of banking on and off-balance sheet items from January 2000 to December 2021.

Habib Bank Limited created the most contribution of liquidity of PKR 1156 Billion in 2021, followed by the National Bank of Pakistan, which created around PKR 799 Billion in the same year. The lowest liquidity was created by the Samba Bank Limited of PKR 46 Billion in 2021 while calculating from "Catfat" measures. Using the Catfat measure

of liquidity, around PKR 0.33 Trillion liquidity was created by all Conventional Banks of Pakistan in 2000, and by 2021 they have created around PKR 7.05 Trillion. Since the Catfat metrics with off-balance sheet activities indicated higher liquidity, it cannot be ruled out that they play a part in creating liquidity. For Catfat, the bank size has an average direct relationship with liquidity production in absolute rupee terms.

The paper also examined how the production of liquidity affects a nation's economic growth. It was discovered that liquidity production significantly improves the nation's economic growth. It implies that banks contribute more to economic growth the more liquidity they generate. The link sparks curiosity about the ideal point; bank can produce liquidity deprived of adding extreme illiquidity to its financial statements. The report highlighted the economic importance of liquidity creation strategies for GDP development and sound banking. In addition, the value added by the financial institution to the economy is strongly related to the liquidity generation measure of Catfat. Because of data constraints, this study could not explore these links fully.

After estimating the liquidity creation, further research can be conducted to investigate various problems in our banking sector, such as determining the ideal level at which banks should create liquidity without deteriorating the liquidity on their balance sheets. Alternatively, examine the correlation between liquidity and the banking sector's balance sheet elements. More importantly, identify how liquidity influences inflation and economic expansion and how it is affected by monetary policy, particularly in Pakistan (Pham et al., 2021). The future recommendation is that there is a need to investigate the different aspects that affect the liquidity banks create in the economy. It will clarify how the monetary authority's choices influence liquidity creation.

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