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Journal of Asian Finance, Economics and Business Vol 8 No 11 (2021) 0223–0234

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The Impact of Operating Cash Flows on Financial Stability of Commercial Banks: Evidence from Pakistan

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Abstract

This study aims to examine whether operating cash flows influence banks' financial stability in Pakistan. The study employed annual panel data collected from annual reports of 20 commercial banks listed on the Pakistan Stock Exchange for the year 2011 to 2019. Free cash flow yield was taken as the dependent variable while cash flow ratio was selected as the independent variable, and net interest margin, income diversification, asset quality, financial leverage, the cost to income ratio, advance net of provisions to total assets ratio, capital ratio, financial performance, breakup value per share and bank size were taken as control variables. The study performed ordinary least square technique, random and fixed effects models, Hausman test, Lagrange multiplier test, descriptive and correlation analysis. Results showed that operating cash flows and net interest margin significantly and positively influenced banks' financial stability while the cost to income ratio and advances net of provisions to total assets ratio significantly and negatively associated with banks' financial stability. To improve financial stability, banks should become more cost-effective and enhance their liquidity levels by lowering lending activities. In the future, it would be useful to compare commercial and investment banks, also Islamic and conventional banks in the same research setting.

1. Introduction

Outburst of the Covid-19 has enforced foremost banks and international institutions to predict very low growth forecasts (Sharma et al., 2020). The adverse effects on economic growth and financial stability are quite difficult to measure due to terrible nature of this crisis, but they must be immediately addressed (Elnahass et al., 2021).

If the corona pandemic lasts more than six months or even a year, with industrial activity and the rest of the world locked down, then Pakistani banks' liquidity problem will convert into a solvency problem, resulting in bankruptcy. Financial stability is affected when a financial firm unable to meet anticipated and unanticipated cash flow requirements as they come due.

The post-pandemic environment is unknown, however, based on current forecasts, banking sector profitability is projected to be impacted by a decline in fee income on wealth products due to capital market instability, as well as increasing credit losses/delinquencies as a result of lockdowns. Hence, the analysis predicts that operating cash flows would be reduced in the near future due to lower profitability, and commercial banks will become more financially vulnerable.

The study takes motivation from some theories such as Jensen's free cash flow hypothesis, agency theory, and signaling theory. According to the free cash flow theory, managers are unwilling to pay dividends or take on debt because their cash flows are lowered as a result of these activities (Kadioglu & Yilmaz, 2017). Managers' desire

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for a large amount of cash in their hands which will result in agency issues. Having too much cash in the hands of management leads to overinvestment in initiatives with a negative net present value. The financial stability of banks has been affected as a result of the aforementioned reasons, which has increased the likelihood of bank failure. Investors may interpret a decline in dividend payment as a negative signal, implying that the company may experience difficult circumstances in the near future. As a result, it is necessary to determine if operating cash flows have an impact on bank financial stability.

Because information on operating cash flows is a signal for outsiders or creditors to inquire about a company's financial condition (Dirman, 2020; Sayari & Mugan, 2017), this study aims to answer the question of whether cash flow from operations affects bank financial stability in Pakistan. To do this, the study used annual panel data from 20 commercial banks listed on the Pakistan Stock Exchange for 9 years, from 2011 to 2019. The study employed free cash flow yield as an exogenous variable and cash flow ratio as a proxy for financial stability, which is the variable of interest in this study. In this study, panel regression techniques such as common, fixed, and random effects were observed, as well as tests such as the Hausman test and the LaGrange multiplier test, to determine the best-suited model.

This study contributes to the existing literature by, first, the study empirically analyzes the impact of operating cash flows on banks' financial stability in the context of Pakistan over the period 2011–2020. Second, no prior study used "free cash flow yield" as a proxy for banks financial stability, thus the proxy used for banks financial stability in this study is "free cash flow yield" as this is a financial solvency ratio that compares the free cash flow per share a company is expected to earn against its market value per share. Proxies used by prior studies for financial stability were mainly the standard deviation of the return on assets (Kim et al., 2020), distance to default (Kim et al., 2020), Z-score (Elnahass et al., 2021; Phan et al., 2021; Ramzan et al., 2021), asset, operational and credit risks (Elnahass et al., 2021). Third, the breakup value per share in the list of variables is a novel addition. It denotes net worth per share and is an important criterion to measure the financial soundness of a bank (State bank of Pakistan). It indicates if the company is capable of operating successfully in the near future or not (Ali et al., 2017). The more the net worth per share, the more will be the financial stability. Fourth, the unique findings of this research will lay a foundation for other parts of the world, especially in developing economies.

Investors and businesses will benefit from this research, as they will be able to analyze a bank's financial stability/strength and choose the optimal entry point for investment. Furthermore, this research will aid students of finance, banking, and risk management in their research projects and provide a better grasp of the newest trends in Pakistan's banking sector. This research is also useful to society and the general public, as the country's economic prosperity is heavily reliant on a financially secure banking sector. The remaining sections of this study comprised of; literature review, Research methodology, Results and discussion, and conclusions and recommendations.

2. Literature Review

In the finance literature, a lot of attention has been given to the financial stability for decades. Financial stability, according to Mishkin (1992), is defined as the ability of the financial system to manage risks, boost and facilitate economic processes, and absorb shocks in a consistent and uninterrupted manner (Mishkin, 1992). Platt and Platt (2002) defined financial distress as the period of drop in financial conditions that would arise before bankruptcy would occur (Platt & Platt, 2002). Many scholars throughout the world studied factors influencing banks' financial stability (Elnahass et al., 2021; Fung et al., 2020; Gupta & Kashiramka, 2020; Kim et al., 2020; Phan et al., 2021; Ramzan et al., 2021).

2.1. Commonly Used Bank-specific Predictors of Financial Stability

Some widely used predictors of bank financial stability in scholarly research were income diversification (Gupta & Kashiramka, 2020; Kim et al., 2020; Xu et al., 2019), leverage (Ramzan et al., 2021; Xu et al., 2019), bank size (Adusei, 2015; Gupta & Kashsiramka, 2020; Ramzan et al., 2021), capital (Bourkhis & Nabi, 2013; Salami, 2018), profitability (Martynova et al., 2015), asset quality (Hassan et al., 2019), liquidity (Gupta & Kashiramka, 2020), interest margins (Abbas et al., 2019; Saksonova, 2014), bank age (Ramzan et al., 2021), financial inclusion (Pham & Doan, 2020), bank competition (Rahman et al., 2021), efficiency (Rahman et al., 2021) and corporate social responsibility, etc. (Ramzan et al., 2021).

2.2. Commonly Used Macroeconomic/Country-Specific Predictors of Financial Stability

Several studies employed macroeconomic predictors of banks financial stability among which most popular were GDP per capita (Elnahass et al., 2021; Kim et al., 2020; Phan et al., 2021), GDP growth (Ali & Puah, 2018; Phan et al., 2021), inflation rate (Ali & Puah, 2018; Phan et al., 2021), Covid-19 (Al-Kharusi & Murthy, 2020; Elnahass et al., 2021), Rule of law, regulatory quality and voice accountability (Kamran et al., 2019), economic policy

uncertainty (Phan et al., 2021), Average country governance index (Elnahass et al., 2021) and Stock market development, governance quality index and merger and acquisition (Gupta & Kashiramka, 2020), corruption (Ali et al., 2019).

2.3. Several Antecedents and Outcomes of Cash Flows from Operations

Operating activities are also a significant source of profit for financial firms, and profits indicate a company's success or failure in implementing its strategies, business plan, and operating activity combination. According to Burke and Wieland (2017), the difference between cash inflows and cash outflows from operating activities is known as banks' cash flows from operation (Burke & Wieland, 2017). Several studies highlight the importance of free operating cash flows from a future earnings perspective and banks' lending perspective (Nguyen & Nguyen, 2020), dividend policy perspective (Kadioglu & Yilmaz, 2017; Rahmawati & Narsa, 2020), and share price perspective (Burke & Wieland, 2017). Several studies highlighted the fact that investors pay attention to operating cash flows (Ali & Zarowin, 1992).

Personal expenditures and overinvestments were evident in contexts with stricter investor protections (La Porta et al., 2000). Firms with higher free cash flows showed stronger evidence of overinvestment (Cai, 2013; Lin & Lin, 2016). As a result, the free cash flow theory was supported, as management inefficiency and agency issues would be more prevalent if enterprises had greater free cash flows. A significant negative relationship was found between dividend per share and free operating cash flows (Kadioglu & Yilmaz, 2017), which supported the free cash flow hypothesis. Cash flows from operations have a significant positive influence on dividend policy (Rahmawati & Narsa, 2020). Similarly, dividend policy decisions were influenced by profitability and free cash flows (Guizani & Kouki, 2012). Also, Al-Fasfus (2020) indicated that the dividend payout ratio was affected by free operating cash flows. On the other hand, some studies were in favor of the irrelevance of dividend policy (Agyei & Marfo-Yiadom, 2011).

Increased operating cash flow opacity increases the probability of a stock price crash because insiders are more likely to withhold negative news and shift firm resources as a result of higher operating cash flow opacity (Jin& Myers, 2006). Similar results were drawn by Kim et al. (2011). Future earnings and future cash flows from operations were predicted by current operating cash flows (Burke & Wieland, 2017) and this was in line with Ryan et al. (2006). Burke and Wieland (2017) discovered a significant positive association between share price and cash flows from operations, since operating cash flows of banks provide relevant information to investors in the valuation of a bank's stock, and similar findings were achieved by Dimitropoulos et al. (2010). Operating cash flows offered more useful information for banks with higher capital ratios than for banks with lower capital ratios (Burke & Wieland, 2017), which was consistent with previous research (Dhaliwal et al., 1991). Unprofitable banks receive less useful information from their operating cash flows than profitable banks (Burke & Wieland, 2017; Hayn, 1995). Cash flows from operations provided more useful information to banks with lower credit risk than to banks with higher credit risk (Burke & Wieland, 2017). The higher the cash flows from operations, the higher will be the earnings per share (Ali et al., 2017).

Credit officers' long- and short-term lending decisions were influenced by information from the cash flow statement (Nguyen & Nguyen, 2020). It was argued that cash flow statements assess a firm's ability to meet debt obligations and dividend payments, and that cash flow statements also provide more information to lenders for decision making (Kwok, 2002). The lack of information on the statement of cash flows in both cases of negative and positive earnings affected credit officers' confidence and ease of decision-making (Nguyen & Nguyen, 2020). Cash flows information from investment, business, and financial operations, according to Das (2019), correctly and fairly portray the firm's financial status. Higher debt ratios resulted in a decline in free cash flow at firms with low Tobin's Q ratios (Khan et al., 2012; Moussa & Chichti, 2011; Zhang, 2009). In addition, Kadioglu and Yilmaz (2017) discovered an inverse link between leverage and free cash flows, supporting the free cash flow hypothesis. Higher cash flow volatility in non-state-owned firms caused a decrease in leverage levels. While in the case of Chinese state-owned enterprises, this inverse relationship between cash flows volatility and leverage is insignificant. Firms that had high cash flow volatility would choose debt with shorter maturities and firms which had low cash flow volatility would choose debt with longer maturities regardless of the structure of ownership (Memon et al., 2018). In the case of firms that had the poorest financial performance measured by operating cash flow, greater debt levels were due to greater cash flow volatility. When firms were rated based on cash flows from operations, firms with operational cash flows in the bottom half increased their leverage usage level due to a rise in cash flow risk. For enterprises having cash flows from activities in the upper half of the distribution, the relationship between cash flow risk and leverage usage level was statistically insignificant (Harris & Roark, 2019).

Free cash flows positively influenced M&A's goodwill. The effect of free cash flows on the goodwill of M&A in state-owned companies was weaker as compared to non-state-owned companies. Those enterprises which had large cash flows and overconfident chief executive officers

tended to invest less as compared to enterprises that had little cash flows (Nguyen et al., 2020).

2.4. Theoretical Background

2.4.1. Free Cash Flow Hypothesis & Agency Theory

In theory, the Jensen's free cash flow hypothesis postulates that managers are likely to invest free cash flow in projects with negative present values (Jensen, 1986). Because managers employ free cash flows to invest in projects with negative net present value, agency theory (Jensen & Meckling, 1976) is theoretically linked to the free cash flow hypothesis (Jensen, 1986, 1993, 1997). Managers' desire for a large amount of cash in their hands will result in agency issues. And this excessive cash in managers' hands leads to overinvestment due to investment in projects having negative net present value (La Porta et al., 2000; Titman et al., 2004). Likewise, Dechow et al. (2008) projected that firms with excessive free cash flow amounts reflect declining future performance. The decreasing tendency of free cash flow in the control of the manager leads to decrease agency cost and increase worth of the company (Park & Jang, 2013). According to Christie and Zimmerman (1994), free operating cash flows would be reduced in the hands of managers by paying out dividends, and hence agency costs would also decrease. Free operating cash flows in the hands of managers would be reduced by paying interest payments on debts (Kadioglu & Yilmaz, 2017). Contrary to this, some prior studies (Agyei & Marfo-Yiadom, 2011; Gill, 2010) supported the study of Miller and Modigliani (1961), whoshowed that dividend policy was irrelevant.

2.4.2. Signaling Theory

These arguments were also supported by signaling theory as this provides information to outsiders regarding future conditions of business (Dirman, 2020). Dividends are frequently used by investors to gauge the existing and future cash flow status of a company. Contrary to this, as Watson and Head (2010) stated that increase in dividend distribution is not a good signal for investors because they think that business is interested more in distributing earnings as a dividend and less interested in the allocation of funds to invest in projects. Therefore, the business might be rated poorly in such conditions (Watson & Head, 2010). Firms that increased their dividends saw significant growth in earnings in the year before and the year of the announcement, but no significant growth in later years, whereas firms that decreased their dividends saw no significant growth in earnings in the year before and the year of the announcement, but significant growth in earnings in the year following the announcement (Benartzi et al., 1997).

2.5. Relationship Between Cash Flows from Operations and Financial Stability

Cash flows from operations assist in distinguishing financially healthy and financially distressed firms as compared to other financial information. Cash flows from operations have a greater ability to determine financial distress relative to other financial information (Nguyen & Nguyen, 2020). The operating cash flow ratio is an important indicator in determining whether a business can recover or not. A well-performing business generates positive net operating cash flows, then this excess cash is used for financing and investing activities, which further increases the financial stability of a business (Nguyen et al., 2020). According to the State bank of Pakistan, high financial stability is also due to high positive cash flows from operations. Higher cash flows from operations lead to an increase in earnings per share (Ali et al., 2017).

Information on operating cash flows is a signal for outsiders or creditors to understand the financial condition of a business (Dirman, 2020; Sayari & Mugan, 2017). Creditors would have a high level of trust in a company's ability to satisfy its financial obligations and prevent financial distress if it had an ideal amount of operating cash flows (Bernardin & Tifani, 2019) who argued that financial difficulties could be reduced in the future due to good free cash flows. Cash flow ratio, profitability & liquidity influence the financial distress of a company (Fahlevi & Marlinah, 2018). Operating cash flows, on the other hand, are based on subjective assumptions and do not contain expenses and revenues that are estimated on an accrual basis; as a result, operating cash flows provide a more accurate picture of a company's profit quality. As a result, cash flows from operations are closely linked to assessing a financial distress situation (Atieh, 2014), After a thorough review of the above literature, this study hypothesizes that;

H1: Cash flow from operations positively influence banks' financial stability.

3. Research Methodology

3.1. Population and Sampling

The population comprised all banks operating in Pakistan. The study employed panel data composed of 20 commercial banks which are listed on Pakistan Stock Exchange for nine years, from

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2011 to 2019. Sample banks consist of National Bank, Askari Bank, Bank Alfalah, Meezan Bank, Bank Al Habib, Habib Bank, Soneri Bank, Faysal Bank, Bank Islami, Standard Chartered Bank (Pakistan), The Bank of Khyber, Summit Bank, Silk Bank, Samba Bank, MCB Bank, JS Bank, Habib Metropolitan Bank, The Bank of Punjab, Allied Bank and United Bank.

3.2. Data Collection

The study collected data on independent and control variables from banks' annual reports (Table 1). This study comprised secondary data. The study downloaded annual reports from websites of banks and data was confirmed with those annual reports which were issued by State Bank of Pakistan. Data on Free cashflow yield (dependent variable) was collected from Finbox. The reason behind choosing these sources is that data on banks is easily available on these sources and officials are willing to share information.

3.3. Estimation Techniques

Descriptive analysis is employed to summarize the fundamental characteristics of data used in the study (Table 2). Ordinary least square is one of the modeling techniques used in the analysis of panel data. It executes the test with constant coefficients like constant slope and intercept. To control omitted variables that do not vary over time but vary across cross sections, fixed effects regression with cross section fixed effects is employed. Period fixed effects regression is used to control omitted variables that aren't constant over time but constant across cross sections. Random effect model is defined as, "regression analysis with a random constant term." Random effects models will estimate the effects of time-invariant variables, but the estimates may be biased because we are not controlling for omitted variables. However, the advantage of using REM is to eliminate heteroscedasticity. F-test is observed to see whether ordinary least square technique is appropriate or fixed effects model. Hausman specification test is performed to see whether REM is appropriate or FEM. Lagrange Multiplier test is performed to see whether REM is better than CEM. Correlation analysis is used to determine multicollinearity among independent variables.

4. Results and Discussion

4.1. Empirical Results

As in Table 2, the mean value of free cash flow yield is very low at –47.476%, which could be a cause of concern for banks' financial stability.

As in Table 3, correlation results revealed that there is no issue of multicollinearity between the independent variable (cash flow ratio) and control variables. Also, the cash flow ratio has a significant positive association with free cash flow yield ($p < 0.05$, $\beta = 0.205$). Net interest margin has a significant positive association with free cash flow yield ($p < 0.05$, $\beta = 0.207$). Financial performance (ROA) also has a significant positive association with free cash flow yield ($p < 0.05$, $\beta = 0.212$). Breakup value per share has a significant positive association with free cash flow yield ($p < 0.05$, $\beta = 0.155$). While the cost to income ratio has a significant negative relationship with free cash flow yield ($p < 0.05$, $\beta = –0.258$). Also advances net of provisions to total assets ratio has a significant negative relationship with free cash flow yield ($p < 0.05$, $\beta = –0.266$). Income diversification, asset quality, financial leverage, capital, and bank size are insignificantly related to free cash flow yield.

The p-value in the Hausman test (Table 5) is less than 0.05, indicating that the fixed effects regression model is suitable to use, and the insignificant p-value in the LaGrange multiplier test indicates that the pooled OLS model is suitable to use. Thus, both tests reject the random effects regression model. The most appropriate model in this study is the fixed effects regression model due to significant F-test (Prob > F 0.000) as shown in Table 4.

4.2. Discussion

As mentioned in Table 4, results depict a significant positive association b/w free cash flow yield and cash flow ratio due to a significant p-value (***$p < 0.01$) and the regression coefficient is positive. Hence, if the cash flow ratio increases by 1 unit, there will be a 1.552 unit increase in free cash flow yield. Therefore, this research indicates that cash flows from operations positively influenced banks' financial stability in the case of Pakistan and accepts the study hypothesis that cash flow from operations positively influence banks' financial stability and this is in line with Atieh (2014) and Fahlevi and Marlinah (2018), who stated that if operating cash flows is higher, the ability of banks to create resources to meet short term obligations will increase, thus financial stability of banks will also be increased.

Net interest margin is significantly and positively associated with free cash flow yield (*$p < 0.1$), and if the net interest margin increases by 1 unit, there will be about 55.569 unit increase in free cash flow yield. Therefore, the study indicates that net interest margins positively influenced banks' financial stability in the case of Pakistan.

There is a significant negative relationship between cost to income ratio and free cash flow yield due to a significant p-value (***$p < 0.01$). The regression coefficient is negative, hence if the cost to income ratio increase by 1unit, there will be a 9.656 unit decrease in free cash flow yield which

Table 1: Summary of Variables Used in the Research

Dependent Variables	Notation	Proxies	Definitions
Financial Stability	fcfy	Free cash flow yield = [levered free cash flow/ market capitalization]*100	Free cash flow yield is a financial solvency ratio that measures the amount of free cash flow for each dollar of market capitalization. *Source*: Finbox.com
Independent Variable	**Notation**	**Proxies**	**Definitions**
Cash flow ratio	cfr	[Cash generated from operating activities/Profit after tax]	It shows how much cash is being generated from operating activities. Highly positive operational cash flow has high financial stability.
Control Variables	**Notation**	**Proxies**	**Definitions**
Capital	ca	[Total equity/total assets]*100	Too high ratio depicts that bank is not capable to utilize its capital optimally through lending activities and too low depicts that the bank hasn't much capital to bear risk linked with its assets, and it may become ruined with any upcoming crisis.
Cost to income ratio	cir	[Non-interest expenses/ Total income]*100	It depicts the percentage of expenses (excluding interest expense) to total income which shows the managerial efficiency in applying banks' resources. A decline in the ratio indicates that the bank is running more efficiently.
Profitability	fp	[Net profit after tax divided by Total Assets]*100	The profitability depicts how much return banks earned on their total assets.
Lending	adv	[Advances net of provisions/Total assets]*100	It represents the relationship b/w net advances and total assets. The higher this **ratio** indicates a bank is loaned up and its liquidity is low
Financial Leverage	lev	[Total deposits/Total Equity]	Higher debt/equity ratio means that banks' debt financing is more than the shares issued by them.
Breakup value per share	bvps	Total shareholder equity/no of ordinary shares	BVPS is net worth per share, also it is a fundamental criteria to assess bank's financial health. The more the net worth per share, the more will be the financial stability.
Bank Size	bs	The natural log of Total Assets	This shows banks' ownership of assets. If a bank has high assets' ownership, more it will be able to offer financial services at low cost.
Assets Quality	aq	[Non-performing loans/ross advances]*100	This ratio expresses the quality of the loan portfolio of a bank. Increasing the ratio indicates that the borrower's default rate increasing.
Income Diversification	divrs	[Non-interest income/Total assets]*100	The ratio tells how much revenue will be earned excluding interest income through bank's other functions by utilizing total assets.
Net Interest Margins	nim	[(Total Interest income – total Interest expenses)/ Total assets]*100	Higher ratio shows cheap funding or we can say that financial institution is commanding higher margins.

Table 2: Descriptive Analysis

Variables	Obs	Mean	Std. Dev.	Min	Max	Skew.	Kurt.
fcfy	168	−47.476	206.992	−1159	575.4	−1.303	9.202
cfr	179	9.706	32.31	−78.81	338.24	6.499	63.858
nim	180	2.963	1.017	−0.14	6.78	0.175	4.409
divrs	180	1.159	0.474	−0.24	2.56	0.193	2.96
aq	180	10.732	7.226	0	48	1.794	8.395
lev	180	14.676	29.709	−42.45	375.8	10.235	123.39
cir	180	30.361	8.304	12.68	57.22	0.796	3.938
adv	180	39.632	8.285	15.33	61.06	0.178	2.59
ca	180	7.843	6.18	−2.48	51.86	4.137	27.3
fp	180	0.88	0.804	−2.02	2.96	−0.609	5.102
bvps	180	33.357	32.998	−13.19	122.54	1.296	3.481
bs	180	19.88	1.005	17.26	21.86	−0.267	2.534

leads to a decrease in financial stability. Therefore, the study concludes that cost inefficiency has a detrimental impact on banks' financial stability in Pakistan and if bank management's efficiency in allocating resources decreases, banks will become more financially distressed.

There is a significant negative relationship between advances net of provisions to total assets ratio and free cash flow yield due to significant p-value (***$p < 0.01$) and regression coefficient is negative. Hence, if advances net of provisions to total assets ratio increase by 1unit, there will be a 7.53 unit decrease in free cash flow yield which leads to a decrease in financial stability. Therefore, the study indicates that increased lending activities reduce banks' liquidity thus negatively affecting bank financial stability in Pakistan, which is consistent with Gupta and Kashiramka (2020) who stated that liquidity creation enhances banks' financial stability.

Income diversification, asset quality, leverage, capital ratio, financial performance, breakup value per share, and bank size are insignificantly associated with free cash flow yield (financial stability) due to insignificant p-values as shown in Table 4.

4.3. Study Contributions

After the thorough analysis of the above literature, it is obvious that none of the previous studies empirically determined the impact of cash flows from operations on banks' financial stability explicitly. Prior studies mainly analyze the impact of operating cash flows on dividend policy, earning per share, leverage, goodwill and on commercial Banks' lending, etc. This study contributes to the existing

literature by, first, the study empirically analyzes the impact of operating cash flows on banks' financial stability in the context of Pakistan over the period 2011–2020. Second, no prior study used "free cash flow yield" as a proxy for banks financial stability, thus the proxy used for financial stability in this study is "free cash flow yield" as this is a ratio of financial solvency that compares the free cash flow per share a firm is anticipated to receive with its per share market value. Proxies used by prior studies for financial stability were mainly the standard deviation of ROA (Kim et al., 2020), distance to default (Kim et al., 2020), *Z*-score (Elnahass et al., 2021; Phan et al., 2021; Ramzan et al., 2021), asset, operational and credit risks (Elnahass et al., 2021). Third, the breakup value per share in the list of variables is a novel addition. It denotes net worth per share and is an important criterion to measure the financial soundness of a bank (State bank of Pakistan). It indicates if the company is capable of operating successfully in the near future or not (Ali et al., 2017). The more the net worth per share, the more will be the financial stability. Fourth, the unique findings of this research will lay a foundation for other parts of the world, especially in developing economies.

5. Conclusion

The study concludes that cash flows from operations and net interest margins positively influenced banks' financial stability in the case of Pakistan. While cost inefficiency and banks' lending activities negatively influenced banks' financial stability in the case of Pakistan. To improve financial stability, banks should become more cost-effective and enhance their liquidity levels by lowering lending

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Table 3: Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) fcfy	1.000											
(2) cfr	0.205	1.000										
	(0.008)											
(3) nim	0.207	–0.082	1.000									
	(0.007)	(0.273)										
(4) divrs	0.083	–0.024	0.196	1.000								
	(0.287)	(0.754)	(0.008)									
(5) aq	–0.014	0.176	–0.397	0.162	1.000							
	(0.862)	(0.018)	(0.000)	(0.030)								
(6) lev	–0.101	0.000	–0.216	0.004	0.207	1.000						
	(0.193)	(0.998)	(0.004)	(0.954)	(0.005)							
(7) cir	–0.258	0.083	–0.060	–0.059	–0.041	–0.102	1.000					
	(0.001)	(0.268)	(0.425)	(0.430)	(0.581)	(0.173)						
(8) adv	–0.266	–0.090	–0.179	–0.155	0.125	0.075	0.326	1.000				
	(0.000)	(0.230)	(0.016)	(0.038)	(0.094)	(0.314)	(0.000)					
(9) ca	0.038	–0.066	0.318	0.125	–0.066	–0.220	0.320	0.018	1.000			
	(0.623)	(0.383)	(0.000)	(0.094)	(0.378)	(0.003)	(0.000)	(0.812)				
(10) fp	0.212	–0.040	0.752	0.289	–0.361	–0.147	–0.369	–0.422	0.074	1.000		
	(0.006)	(0.598)	(0.000)	(0.000)	(0.000)	(0.049)	(0.000)	(0.000)	(0.327)			
(11) bvps	0.155	–0.082	0.390	0.110	–0.263	–0.110	–0.219	–0.384	–0.030	0.490	1.000	
	(0.044)	(0.276)	(0.000)	(0.140)	(0.000)	(0.140)	(0.003)	(0.000)	(0.692)	(0.000)		
(12) bs	0.136	–0.107	0.199	0.130	–0.213	–0.006	–0.307	–0.267	–0.345	0.411	0.752	1.000
	(0.078)	(0.155)	(0.007)	(0.083)	(0.004)	(0.941)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	

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Table 4(a): Fixed Effects Panel Regression

Fcfy	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
cfr	1.552	0.51	3.04	0.003	0.543	2.561	***
nim	55.569	32.872	1.69	0.093	−9.432	120.571	*
divrs	83.861	55.527	1.51	0.133	−25.939	193.661	
aq	−1.25	4.345	−0.29	0.774	−9.842	7.343	
lev	−0.334	0.528	−0.63	0.528	−1.379	0.711	
cir	−9.656	3.266	−2.96	0.004	−16.113	−3.198	***
adv	−7.53	2.861	−2.63	0.009	−13.187	−1.874	***
ca	1.97	3.647	0.54	0.59	−5.242	9.182	
fp	−41.055	42.586	−0.96	0.337	−125.266	43.155	
bvps	−0.217	2.098	−0.10	0.918	−4.366	3.932	
bs	80.315	59.188	1.36	0.177	−36.725	197.355	
Constant	−1289.397	1225.133	−1.05	0.294	−3712.014	1133.22	
Mean dependent var	−43.441		SD dependent var			200.881	
R-squared	0.235		Number of obs			167.000	
F-test	3.827		Prob > F			0.000	
Akaike crit. (AIC)	2195.490		Bayesian crit. (BIC)			2232.906	

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table 4(b): Random Effects GLS Panel Regression

Fcfy	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
cfr	1.788	0.495	3.61	0	0.817	2.759	***
nim	55.47	25.212	2.20	0.028	6.055	104.886	**
divrs	14.956	36.327	0.41	0.681	−56.245	86.156	
aq	−1.432	2.727	−0.53	0.599	−6.777	3.912	
lev	−0.489	0.527	−0.93	0.354	−1.522	0.544	
cir	−9.732	2.353	−4.14	0	−14.343	−5.121	***
adv	−2.607	2.127	−1.23	0.22	−6.776	1.561	
ca	5.133	2.997	1.71	0.087	−0.74	11.007	*
fp	−67.062	37.995	−1.77	0.078	−141.531	7.407	*
bvps	−0.514	0.751	−0.68	0.494	−1.986	0.958	
bs	38.223	25.515	1.50	0.134	−11.785	88.23	
Constant	−551.192	508.219	−1.08	0.278	−1547.283	444.899	
Mean dependent var	−43.441		SD dependent var			200.881	
Overall R-squared	0.220		Number of obs			167.000	
χ^2	43.839		Prob > χ^2			0.000	
R-squared within	0.185		R-squared between			0.414	

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

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Table 5: Hausman Specification and Lagrangian Multiplier Tests

Hausman (1978) Specification Test		Lagrangian Multiplier Test for Random Effects	
	Coef.		
χ^2 test value	24.843	Chibar^2	0
P-value	0.01	*P*-value	1

activities. In the future, it would be useful to examine other countries to generalize the empirical results. Future scholars can compare commercial and investment banks, also Islamic and conventional banks in the same research setting.

References

Abbas, F., Butt, S., Masood, O., & Javaria, K. (2019). The effect of bank capital buffer on bank risk and net interest margin: Evidence from the US. *Global Journal of Social Sciences Studies, 5*(2), 72–87. https://doi.org/10.20448/807.5.2.72.87

Adusei, M. (2015). The impact of bank size and funding risk on bank stability. *Cogent Economics Finance, 3*(1), 1111489. https://doi.org/10.1080/23322039.2015.1111489

Agyei, S. K., & Marfo-Yiadom, E. (2011). Dividend policy and bank performance in Ghana. *International Journal of Economics and Finance, 3*(4), 202–207. https://doi.org/10.5539/ijef.v3n4p202

Al-Fasfus, F. S. (2020). Impact of free cash flows on dividend pay-out in Jordanian Banks. *Asian Economic and Financial Review, 10*(5), 547. https://doi.org/10.18488/journal.aefr.2020.105.547.558

Al-Kharusi, S., & Murthy, S. R. (2020). Financial stability of GCC banks in the COVID-19 Crisis: A simulation approach. *The Journal of Asian Finance, Economics, and Business, 7*(12), 337–344. https://doi.org/10.13106/jafeb.2020.vol7.no12.337

Ali, A., & Zarowin, P. (1992). Permanent versus transitory components of annual earnings and estimation error in earnings response coefficients. *Journal of Accounting and Economics, 15*(2–3), 249–264. https://doi.org/10.1016/0165-4101(92)90020-3

Ali, M., & Puah, C. H. (2018). Do bank size and funding risk affect banks' stability? A lesson from Pakistan. *Global Business Review, 19*(5), 1166–1186. https://doi.org/10.1177/0972150918788745

Ali, M., Sohail, A., Khan, L., & Puah, C.-H. (2019). Exploring the role of risk and corruption on bank stability: Evidence from Pakistan. *Journal of Money Laundering Control, 22*(4), 270–288. https://doi.org/10.1108/JMLC-03-2018-0019

Ali, M. A., Kalim, U., Raza, H., Ali, H. A., Rehman, M., & Ullah, M. I. (2017). The relationship between ROA, ROE, ROCE, and EPS ratios with break-up values of shares of Karachi-Pakistan fuel and energy listed companies. *Journal of Finance*

and Accounting, 5(3), 115–122. https://doi.org/10.11648/j.jfa.20170503.15

Atieh, S. H. (2014). Liquidity analysis using cash flow ratios as compared to traditional ratios in the pharmaceutical sector in Jordan. *International Journal of Financial Research, 5*(3), 146–158. https://doi.org/10.5430/ijfr.v5n3p146

Benartzi, S., Michaely, R., & Thaler, R. (1997). Do changes in dividends signal the future or the past? *The Journal of Finance, 52*(3), 1007–1034. https://doi.org/10.1111/j.1540-6261.1997.tb02723.x

Bernardin, D. E. Y., & Tifani, T. (2019). Financial distress predicted by cash flow and leverage with capital intensity as moderating. *Jurnal Apresiasi Ekonomi, 7*(1), 18–29. https://doi.org/10.31846/jae.v7i1.188

Bourkhis, K., & Nabi, M. S. (2013). Islamic and conventional banks' soundness during the 2007–2008 financial crisis. *Review of Financial Economics, 22*(2), 68–77. https://doi.org/10.1016/j.rfe.2013.01.001

Burke, Q. L., & Wieland, M. M. (2017). Value relevance of banks' cash flows from operations. *Advances in Accounting, 39*, 60–78. https://doi.org/10.1016/j.adiac.2017.08.002

Cai, J. F. (2013). Does corporate governance reduce the over-investment of free cash flow? Empirical evidence from China. *Journal of Finance and Investment Analysis, 2*(3), 97–126. http://www.scienpress.com/Upload/JFIA/Vol%202_3_8.pdf

Christie, A. A., & Zimmerman, J. L. (1994). Efficient and opportunistic choices of accounting procedures: Corporate control contests. *Accounting Review, 69,* 539–566. https://urresearch.rochester.edu/

Das, S. (2019). Cash flow ratios and financial performance: A comparative study. *Accounting, 5*(1), 1–20. https://doi.org/10.5267/j.ac.2018.6.004

Dechow, P. M., Richardson, S. A., & Sloan, R. G. (2008). The persistence and pricing of the cash component of earnings. *Journal of Accounting Research, 46*(3), 537–566. https://doi.org/10.1111/j.1475-679X.2008.00283.x

Dhaliwal, D. S., Lee, K. J., & Fargher, N. L. (1991). The association between unexpected earnings and abnormal security returns in the presence of financial leverage. *Contemporary Accounting Research, 8*(1), 20–41. https://doi.org/10.1111/j.1911-3846.1991.tb00832.x

Dimitropoulos, P. E., Asteriou, D., & Koumanakos, E. (2010). The relevance of earnings and cash flows in a heavily regulated industry: Evidence from the Greek banking sector. *Advances in Accounting, 26*(2), 290–303. https://doi.org/10.1016/j.adiac.2010.08.005

Dirman, A. (2020). Financial distress: The impacts of profitability, liquidity, leverage, firm size, and free cash flow. *International Journal of Business, Economics, and Law, 22*(1), 17–25. https://www.ijbel.com/wp-content/uploads/2020/08/IJBEL22_205.pdf.

Elnahass, M., Trinh, V. Q., & Li, T. (2021). Global banking stability in the shadow of the Covid-19 outbreak. *Journal of*

Mustahsan ELAHI, Habib AHMAD, Muhammad SHAMAS UL HAQ, Ali SALEEM /
Journal of Asian Finance, Economics and Business Vol 8 No 11 (2021) 0223–0234

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International Financial Markets, Institutions, and Money, 72, 101322. https://doi.org/10.1016/j.intfin.2021.101322

Fahlevi, M. R., & Marlinah, A. (2018). The Influence of liquidity, capital structure, profitability, and cash flows on the company's financial distress.*Jurnal Bisnis dan Akuntansi, 20*(1), 59–68. https://doi.org/10.34208/jba.v20i1.409

Fung, D. W., Lee, W. Y., Yeh, J. J., & Yuen, F. L. (2020). Friend or foe: The divergent effects of FinTech on financial stability. *Emerging Markets Review, 45*, 100727. https://doi.org/10.1016/j.ememar.2020.100727

Gill, B. (2010). Stock market liquidity and firm dividend policy. *The Open Business Journal, 3*, 8–14. https://doi.org/10.5267/j.msl.2014.6.0452

Guizani, M., & Kouki, M. (2012). Ownership-control discrepancy and dividend policy: Evidence from Tunisia. *International Business Research, 5*(1), 127. https://doi.org/10.5539/ibr.v5n1p127

Gupta, J., & Kashiramka, S. (2020). Financial stability of banks in India: Does liquidity creation matter? *Pacific-Basin Finance Journal, 64*, 101439. https://doi.org/10.1016/j.pacfin.2020.101439

Harris, C., & Roark, S. (2019). Cash flow risk and capital structure decisions. *Finance Research Letters, 29*, 393–397. https://doi.org/10.1016/j.frl.2018.09.005

Hassan, M. K., Khan, A., & Paltrinieri, A. (2019). Liquidity risk, credit risk, and stability in Islamic and conventional banks. *Research in International Business Finance 48*, 17–31. https://doi.org/10.1016/j.ribaf.2018.10.006

Hayn, C. (1995). The information content of losses. *Journal of Accounting and Economics, 20*(2), 125–153. https://doi.org/10.1016/0165-4101(95)00397-2

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review, 76*(2), 323–329. https://www.jstor.org/stable/1818789

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance, 48*(3), 831–880. https://doi.org/10.1111/j.1540-6261.1993.tb04022.x

Jensen, M. C. (1997). *Eclipse of the public corporation*. Harvard Business Review. https://hbr.org/1989/09/eclipse-of-the-public-corporation

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics, 3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Jin, L., & Myers, S. C. (2006). R2 around the world: New theory and new tests. *Journal of Financial Economics, 79*(2), 257–292. https://doi.org/10.1016/j.jfineco.2004.11.003

Kadioglu, E., & Yilmaz, E. A. (2017). Is the free cash flow hypothesis valid in Turkey? *Borsa Istanbul Review, 17*(2), 111–116. https://doi.org/10.1016/j.bir.2016.12.001

Kamran, H. W., Mohamed-Arshad, S. B., & Omran, A. (2019). Country governance, market concentration, and financial market dynamics for banks stability in Pakistan. *Research in World Economy, 10*(2), 136–146. https://www.sciedu.ca/journal/index.php/rwe/article/view/15882

Khan, A., Kaleem, A., & Nazir, M. S. (2012). Impact of financial leverage on agency cost of free cash flow: Evidence from the manufacturing sector of Pakistan. *Journal of Basic and Applied Scientific Research, 2*(7), 6694–6700. https://lahore.comsats.edu.pk/Papers/Abstracts/146-8588087134154383308.pdf

Kim, H., Batten, J. A., & Ryu, D. (2020). The financial crisis, bank diversification, and financial stability: OECD countries. *International Review of Economics & Finance, 65*, 94–104. https://doi.org/10.1016/j.iref.2019.08.009

Kim, J. B., Li, Y., & Zhang, L. (2011). CFOs versus CEOs: Equity incentives and crashes. *Journal of Financial Economics 101*(3), 713–730. https://doi.org/10.1016/j.jfineco.2011.03.013

Kwok, H. (2002). The effect of cash flow statement format on lenders' decisions. *The International Journal of Accounting, 37*(3), 347–362. https://doi.org/10.1016/S0020–7063(02)00171-1

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (2000). Agency problems and dividend policies around the world. *The Journal of Finance, 55*(1), 1–33. https://doi.org/10.1111/0022-1082.00199

Lin, D., & Lin, L. (2016). How does Corporate Governance Affect Free Cash Flow? *Journal of Applied Finance and Banking, 6*(3), 145. http://www.scienpress.com/Upload/JAFB/Vol%206_3_10.pdf

Martynova, N., Ratnovski, M. L., & Vlahu, M. R. (2015). *Bank profitability and risk-taking*(Working Paper No. 15/249) Washington DC: International Monetary Fund.https://www.imf.org/external/pubs/ft/wp/2015/wp15249.pdf

Memon, Z. A., Chen, Y., Tauni, M. Z., & Ali, H. (2018). The impact of cash flow volatility on firm leverage and debt maturity structure: Evidence from China. *China finance review international 8*(1), 69–91. https://doi.org/10.1108/CFRI-06-2017-0106

Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the evaluation of shares.*The Journal of Business, 34*(4). https://www.jstor.org/stable/2351143

Mishkin, F. S. (1992). Anatomy of a financial crisis. *Journal of Evolutionary Economics, 2*(2), 115–130.

Moussa, F. B., & Chichti, J. (2011). Interactions between free cash flow, debt policy and structure of governance: Three-stage least-square simultaneous model approach. *Journal of Management Research,3*(2), 1. https://doi.org/10.5296/jmr.v3i2.614

Nguyen, D. D., & Nguyen, A. H. (2020). The impact of cash flow statement on the lending decision of commercial banks: Evidence from Vietnam. *The Journal of Asian Finance, Economics, and Business, 7*(6), 85–93. https://doi.org/10.13106/jafeb.2020.vol7.no6.085

Nguyen, D. V., Dang, D. Q., Pham, G. H., & Do, D. K. (2020). Influence of overconfidence and cash flow on investment in Vietnam. *The Journal of Asian Finance, Economics, and*

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Journal of Asian Finance, Economics and Business Vol 8 No 11 (2021) 0223–0234

Business, 7(2), 99–106. https://doi.org/10.13106/jafeb.2020.vol7.no4.287

Pham, M. H., & Doan, T. P. L. (2020). The impact of financial inclusion on financial stability in Asian countries. *The Journal of Asian Finance, Economics, and Business, 7*(6), 47–59. https://doi.org/10.13106/jafeb.2020.vol7.no6.047

Phan, D. H. B., Iyke, B. N., Sharma, S. S., & Affandi, Y. (2021). Economic policy uncertainty and financial stability–Is there a relation? *Economic Modelling, 94*, 1018–1029. https://doi.org/10.1016/j.econmod.2020.02.042

Platt, H. D., & Platt, M. B. (2002). Predicting corporate financial distress: reflections on choice-based sample bias. *Journal of Economics And Finance, 26*(2), 184–199. https://doi.org/10.1007/BF02755985

Rahman, S. M. K., Chowdhury, M. A. F., & Tania, T. C. (2021). Nexus among Bank Competition, Efficiency, and Financial Stability: A Comprehensive Study in Bangladesh. *The Journal of Asian Finance, Economics, and Business, 8*(2), 317–328.

Rahmawati, R., & Narsa, I. M. (2020). Operating cash flow, profitability, liquidity, leverage, and dividend policy. *International Journal of Innovation, Creativity and Change., 11*(9), 121–148. https://doi.org/10.13106/jafeb.2021.vol8.no2.0317

Ramzan, M., Amin, M., & Abbas, M. (2021). How does corporate social responsibility affect financial performance, financial stability, and financial inclusion in the banking sector? Evidence from Pakistan. *Research in International Business and Finance, 55*, 101314. https://doi.org/10.1016/j.ribaf.2020.101314

Ryan, S. G., Tucker, J. W., & Zarowin, P. A. (2006). Classification and market pricing of the cash flows and accruals on trading positions. *The Accounting Review, 81*(2), 443–472. https://doi.org/10.2308/accr.2006.81.2.443

Saksonova, S. (2014). The role of net interest margin in improving banks' asset structure and assessing the stability and efficiency of their operations. *Procedia-Social Behavioral Sciences, 150*, 132–141. https://doi.org/10.1016/j.sbspro.2014.09.017

Salami, A. A. (2018). Determining a Better Predictor of Bank's Solvency in Nigeria: Risk-Based Capital or Risk-Independent Capital? *Acta Universitatis Danubius Economica, 14*(6), 522–546. http://journals.univ-danubius.ro/index.php/oeconomica/article/view/4859

Sayari, N., & Mugan, C. S. (2017). Industry-specific financial distress modeling. *BRQ Business Research Quarterly, 20*(1), 45–62. https://doi.org/10.1016/j.brq.2016.03.003

Sharma, P., Leung, T. Y., Kingshott, R. P., Davcik, N. S., & Cardinali, S. (2020). Managing uncertainty during a global pandemic: An international business perspective. *Journal of Business Research 116*, 188–192. https://doi.org/10.1016/j.jbusres.2020.05.026

Subramanya, K., & John, J. (2010). *Financial report analysis* (10th ed.). Jakarta: Salemba Empat.

Titman, S., Wei, K. J., & Xie, F. (2004). Capital investments and stock returns. *Journal of Financial and Quantitative Analysis, 39*(4), 677–700. https://www.jstor.org/stable/30031881

Watson, D., & Head, A. (2010). *Corporate finance: principles and practice*. London, UK: Pearson Education.

Xu, M. T., Hu, K., & Das, M. U. S. (2019). *Bank profitability and financial stability* (Working Paper No. 19/5). Washington DC: International Monetary Fund. https://www.imf.org/~/media/Files/Publications/WP/2019/wp1905.ashx

Zhang, Y. (2009). Are debt and incentive compensation substitutes in controlling the free cash flow agency problem? *Financial Management 38*(3), 507–541. https://doi.org/10.1111/j.1755-053X.2009.01046.x