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## **PREDICTING FUTURE OPERATING CASH FLOWS IN JORDANIAN COMMERCIAL BANKS BY USING FAIR VALUE ACCOUNTING**

*The aim of this paper is to examine the ability of fair value accounting data to predict future operating cash flows up to three years ahead in Jordanian commercial banks, as well as to test whether there are significant differences among banks according to their size with regard to the ability of fair value accounting to predict cash flows. Multiple linear regression method is used to analyze the financial data of the study population, which consist of (13) Jordanian commercial Banks for the period (2005-2014). The study sample is the same as the study population. The fair value financial assets and liabilities are used in (3) models. The first model contains net financial assets; the second model includes total financial assets and total financial liabilities; and the third model contains the detailed components of financial assets and liabilities. The study concludes that fair value accounting data (through net financial assets, through total financial assets and total financial liabilities, and through items of financial assets and financial liabilities)*

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*have a statistically significant predictive ability in predicting future operating cash flows of Jordanian commercial banks for three subsequent years. The results also show that there are no statistically significant differences among Jordanian commercial banks according to their size with regard to the ability of fair value accounting to predict future operating cash flows up to three years ahead. Nevertheless, the predictive ability is greater for large-sized banks. This study recommends maintaining the continuity of applying fair value accounting by Jordanian commercial banks, and following any updates related to fair value accounting in the IFRS.*

**Key words:** *Predicting, Operating cash flows, Fair value accounting, Jordanian commercial banks.*

## 1. INTRODUCTION

The sector of Jordanian commercial banks is considered one of the most sectors that used fair value accounting, since this sector owns the highest rate of its financial assets which are valued at fair value (Central Bank of Jordan, 2007; Solayman, 2010; Alessa, 2012). These financial assets in our study sample represent (90%) out of total assets. This rate indicates the great deal in financial assets in Jordanian commercial banks.

The proponents of fair value accounting argue that it provides complete and current relevant information for the values of financial assets and liabilities, as well as provides information about amount, timing, and uncertainty of future cash flows (CFA Institute, 2010: 22). Hence, this study will examine the predictive ability of fair value, because the predictive value is considered an important qualitative characteristic of accounting information.

The dimension of future cash flows is selected, because it is the basis of strategic corporate decision as companies rely on cash flow projections to make strategic decisions related to their future expansion or contraction. It also gives an expectation of the level of liquidity available to companies.

Therefore, the ability of fair value accounting to predict future cash flows in Jordanian commercial banks will enhance its wider use in other sectors, and will provide a new evidence of the predictive capability of fair value accounting; thus, provide a better representation of the qualitative characteristic of relevance.

### *1.1 Study Problem and Questions*

Jordanian commercial banks use fair value accounting in assessing their financial assets and liabilities. A number of accounting boards and a number of studies pointed out that fair value accounting provides a better representation of the qualitative characteristics of accounting information, especially the relevance characteristic, as fair value accounting is expected to provide a high predictive ability, which is one of the ingredients of relevance (CFA Institute, 2010: 7; Mackenzie et al., 2013: 824). However, during the global financial crisis in 2008, fair value accounting was blamed for economic collapse, which means the loss of financial data provided by fair value accounting the capability of financial predictability (Alghazwi, 2010).

Based on this debate, the problem of this study can be raised through the following questions:

1. Do fair value accounting data (through net financial assets, through total financial assets and total financial liabilities, and through detailed financial assets and financial liabilities items) predict future operating cash flows of Jordanian commercial banks for three subsequent years?
2. Are there any differences among Jordanian commercial banks according to their size with regard to the ability of fair value accounting to predict future operating cash flows up to three years ahead?

### *1.2 Study Motivation and Contribution*

The importance of this study stems from the fact that it deals with a crucial topic, although it is rarely highlighted locally -according to the limits of researchers' knowledge- which is the predictive ability of fair value accounting, because of its significance to banks to anticipate their future cash flows resulted from financial assets and liabilities. The motivation of this paper also arises from that fair value accounting should provide a better representation of the qualitative characteristics of accounting information than historical cost accounting in terms of its predictive capacity. The importance of this study lies in the fact that it will examine future cash flows, which is also of high significance in the strategic decision of banks as it is linked with their liquidity. This study is also vital as it will examine fair value accounting in the banking sector in Jordan in compliance with the instructions of the Central Bank of Jordan. The importance of this study also lies in its targeting of a fundamental pillar in the Jordanian economy, which is the banking sector that is characterized by large financial resources and expertise.

### 1.3 Study Objectives

Fair value accounting as compared to historical cost accounting provides a better representation of relevance of accounting information, so fair value accounting should provide a better prediction of future cash flows. Therefore, researchers can summarize the objectives of this study as follows:

1. To investigate fair value accounting in Jordanian commercial banks and examine fair value items in the statement of financial position.
2. To test whether fair value accounting data (through net financial assets, through total financial assets and total financial liabilities, and through detailed financial asset and liabilities items) predicts future operating cash flows of Jordanian commercial banks for three years thereafter.
3. To examine whether there are differences among Jordanian commercial banks according to their size in relation to the capacity of fair value accounting data to forecast operating cash flows three years later.

### 1.4 Study Hypotheses

Based on the study problem and its objectives, the following null hypotheses are formulated:

*The first hypothesis: H01: There is no statistically significant predictive ability of fair value accounting data in predicting future operating cash flows of Jordanian commercial banks for three subsequent years.*

The following three sub- hypotheses emerge from the main hypothesis:

H01/1: There is no statistically significant predictive ability for fair value accounting data through net financial assets in predicting future operating cash flows of Jordanian commercial banks for three subsequent years.

H01/2: There is no statistically significant predictive ability for fair value accounting data through total financial assets and total financial liabilities in predicting future operating cash flows of Jordanian commercial banks for three subsequent years.

H01/3: There is no statistically significant predictive ability for fair value accounting data through financial assets items and financial liabilities items in predicting future operating cash flows of Jordanian commercial banks for three subsequent years.

*The second hypothesis: H02: There are no statistically significant differences among Jordanian commercial banks according to their size with regard to the predictive ability of fair value accounting data in predicting future operating cash flows for three subsequent years.*

### ***1.5 Study Limitations***

Deflators are used, whereby researchers divide all variables by total assets and by the number of subscribed shares, but it is observed that there is a difference in the results when using any of the two previous deflators, as there are relatively weak relationships among study variables. However, when using the original data in the statistical analyses without using deflators, a significant difference is observed in the results. This limitation also appeared in the study of Ehalaiye et al. (2017) so they did not use deflators. It is worth to note that a deflator is used to control and avoid the problem of differences among firms in their size, and to adjust for potential heteroskedasticity and spurious correlations derived from firm size (Akbar and Stark, 2003). The tenor of the results should not generally sensitive to the choice of the deflator and should demonstrate the robustness of results to different size deflators; however, different deflators could lead to variations in results, as this was one of the limitations of our study and the Ehalaiye et al. (2017) study. Therefore, both studies used the original data without using deflators, whose results might be better representation of data.

In another issue, the impact of the global financial crisis on the predictive power of fair value accounting data in predicting future cash flows is not studied due to the limited number of observations available during the period of the global crisis between 2008 and 2010, and also because of an overlap between study data for the periods before, during and after this crisis This will lead unreliable results.

Finally, book values are used for some items of financial assets and liabilities for some Jordanian commercial banks as a result of the lack of fair values for these items. These items are financial assets held-to-maturity investment, investments in affiliates and direct credit facilities. It is worth noting that these items should be disclosed at their fair values in the notes of financial statements; however, some banks did not disclose these values. It should be noted that the difference between book values and fair values of these items is not likely to affect the results of the study, since the difference between these values is very small when compared in banks who disclose fair values, and the percentage of these items is relatively considered low from total financial assets or from total financial liabilities.

## 2. THEORETICAL FRAMEWORK

According to the International Accounting Standard (IAS) No. (39) entitled “Financial Instruments: Recognition and Measurement” and International Financial Reporting Standard (IFRS) No. (13) entitled “Measuring Fair Value”, fair value is defined as value under which an asset could be exchanged or a liability could be settled between parties, each of them has a desire to exchange and aware of facts and deal with free away from liquidation (Barth et al., 1995: 580; Mackenzie et al., 2013: 874; Hemedat and Abu Nassar, 2019). It is worth noting that IAS 39 was replaced by IFRS 9 entitled “Financial Instruments” effective on 1 January 2018.

The concept of fair value began to appear in 1963 when the Accounting Research Studies (ARS) No. (3) was published. This study represents the era of modern accounting science, as it contained evidence questioning the use of the historical cost in assessing assets, and this study recommended that if there is a change in the value of assets, and this change can be objectively determined, then it must be recognized and disclosed (Emerson et al., 2010: 79). The historical cost is characterized by the stability of the monetary unit under different economic conditions, which makes it a subjective measure and does not provide confidence in financial information. Hence, the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) issue a set of standards that provide financial data based on fair value to provide high quality and relevant information that reflects the current financial situation (Jumaa and Khanfar, 2007: 7; Alnajjar, 2013: 472).

In 2007, the first signs of the global financial crisis began to appear in the USA and global markets, where the USA market began to observe a significant increase in the inability of borrowers to pay their mortgage loans, especially those with insufficient guarantees. In addition, there was a spread of a lack of confidence in the global banking system, which led depositors to withdraw their deposits; this deepened the complications of banks in terms of the large lack of their liquidity. This situation led to a series of collapses in global banks (Nour et al., 2009: 3). American banks demanded the stop of using fair value accounting because it led to the impairment of their financial assets during the financial crisis whose effects spanned between 2008 and 2010 (Ehalaiye et al., 2017).

Extensive criticism of fair value accounting was directed after this crisis, as George McCain, the Republican candidate for the American presidential elections, with the participation of a large number of members of Congress in 2008, demanded to stop using the fair value in measuring real estate investments, as fair values led to expand providing mortgage loans, leading to the first episodes of the crash, and IAS 39 entitled “Financial Instruments: Recognition and Measurement” faced a broad campaign of criticism (Alghazwi, 2010).

This situation led both IASB and FASB to stand in front of these campaigns to defend the concept of fair value. A meeting was held in 2008 devoted to studying the credit crisis and the discussion of the report submitted regarding this crisis from the Financial Stability Forum (FSF), which was prepared in cooperation with many international organizations. The results of this meeting were the issuance of a manual for the use of fair value in light of the circumstances that were considered unfamiliar at that time.

To this end, Sir David Tweedy, President of IASB, presented in 2008 a report to the US Senate, stating (Nour et al., 2009: 6):

1. International accounting standards have a significant role in restoring confidence and transparency in markets, especially in light of financial crises.
2. The main reason for this crisis is due to bad practices followed in the lending process. The role of fair value accounting was to show the reality of those practices.
3. The fair value showed the real losses but did not contribute to them.

On the other hand, some studies conducted on the financial crisis showed that fair value accounting has led to burning markets, i.e. significantly reducing the value of assets from their real price in order to provide liquidity and sell them at a price that is less than what they deserve in the normal situation. This problem led to a loss of financial information for its usefulness and its predictive ability of future financial performance of companies.

However, financial assets and liabilities valued at fair value provide relevant information to its users as representing the current reality of those assets and liabilities in markets, meaning that if a company decided to sell a specific financial asset, then the price at which that asset would be sold represents its fair value, so future cash flows expected from that asset approximates its fair value (Evans et al., 2014: 14).

Fair value has a predictive ability as it can be used as inputs into models prepared by its users to predict future financial performance of a company (Schroeder et al., 2017). Opponents of using fair value believe that it does not provide the characteristic of faithful representation, because it is largely dependent on expectations. It must be noted that the degree required to achieve the characteristics of relevance and faithful representation is considered the basis of preference when comparing historical cost with fair value. Historical cost achieves a large degree of faithful representation and less relevance, while the fair value achieves a greater degree of relevance and less faithful representation, especially in the absence of an active market (CFA Institute, 2010: 6).

There are a number of justifications that explain the reasons behind the predictive power of fair value in predicting future cash flows, which are:

1. Fair value represents the current market conditions and also reflects the expectations of future cash flows; that is, it provides current information about future expectations of cash flows. Then, if there is a change in these future expectations then the fair value must show this change (CFA Institute, 2010: 8; Ehalaiye et al., 2017; Ryan, 2008: 12).

FASB and IASB also indicated that the predictive power exists in the items of financial assets and liabilities, as they should communicate information about future financial performance of companies in terms of expected in- and out-cash flows, as explained. Both FASB and IASB argue that fair value accounting provides better traceability than any other metric and thus can provide better predictive power than other metrics (Barth, 2006: 285; Ehalaiye et al., 2017).

Barth (2006) indicated that financial information has predictive power if it is used as inputs to a model for forecasting future financial performance, such as using current revenue data to predict future revenues, so the revaluation of financial assets and liabilities by using fair value accounting will lead to improve forecasting future cash flows, and will provide information about the amount, timing and risks of future flows (CFA Institute, 2010: 22), as fair value represents current expectations of future performance.

The study of Aboody et al. (1999) showed that there is a positive relationship between the book value of long-term assets that are revalued and future cash flows. This study also showed that there is a relationship between fair value and revalued book value of long-term assets. So, the closer the book value to the fair value enhances the association with future cash flows.

2. The fair value of financial instruments has predictive power in predicting future cash flows, because unrealized gains and losses resulting from a revaluation of financial instruments at fair value can be converted to realized gains and losses if these instruments are sold (Evans et al., 2014: 18). CBJ determines that it is prohibited for banks to use the amounts of accumulated changes in fair values unless with the prior approval of CBJ or if these financial instruments are sold.

Consequently, the fair value of financial instruments should be related to cash flows that would be realized in the future, since the company knows that in the event the financial asset is sold, future cash flows will be expected. It is worth noting that fair value provides expectations for a com-



pany if it should sell or maintain financial instruments according to the constraint of cost and benefit in accounting. A number of studies proved this relationship, including Petroni and Wahlen (1997) that showed fair value of long-term investments is associated with future profits of these investments, moreover, Evans et al. (2014) concluded that accumulated changes in fair value are highly related with future income and cash flows.

3. The freedom in accounting standards related to fair value can be used to increase profits of companies, because it provides the option of earnings management more than other measurement methods (Barth and Taylor, 2010; Bratten et al., 2012; Xiaolu, 2013; Yao et al., 2018).

However, there are a number of criticisms directed at fair value accounting regarding its ability to predict financial performance. These criticisms indicated that fair value only forecasts short term, because fair values vary based on changes of market conditions; so profits differ from one period to the next (Bratten et al., 2012: 12). However, the researchers believe that this is an advantage of fair value, because fair value is primarily intended to reflect market prices in the financial report; thus, changes in forecasts are variable and not fixed based on new data affecting markets.

A criticism of fair value accounting is in the results of Graham et al. (2005), who indicated that managers believe that fair values with large fluctuations make difficult to predict financial performance through them. The researchers contend that even if fair values are considered to provide volatile profits, it does not mean that predicting future cash flows is difficult or its quality is low, because fluctuations resulting from fair values reflect economic fluctuations of a company; therefore, fair values in this case represent the current status of a company, so enable comparison of data among financial periods of that company.

It should be noted that the Central Bank of Jordan (CBJ) undertook a comprehensive review of the legislation system governing the Jordanian banking system in 2007, leading to the issuance of a handbook that included all instructions for banks operating in Jordan. It included that CBJ apply financial data forms in accordance with the requirements of IFRS 7, which was issued in 2005 entitled "Financial Instruments: Disclosures" as of the data published in 2007 (Central Bank of Jordan, 2007: 128).

### 3. LITERATURE REVIEW

#### 3.1 *Fair Value Accounting in the Banking Sector*

Alkhadash and Abdullatif (2009) aimed to analyze the effect of applying fair value accounting for financial instruments on financial performance of banks through earnings per share (EPS). The researchers used the one sample (T-Test) to examine study hypotheses. This study was applied on Jordanian commercial and investment banks for the period (2002-2006). The researchers compared published financial data using fair value with those calculated using historical cost. The study found that financial performance of banks is affected by the valuation of financial instruments at fair value, as there are positive and high values of EPS from unrealized gains or losses from holding financial instruments. Moreover, in some developing countries (such as Jordan), the use of fair value accounting could distort earnings and mislead users of financial statements.

Solayman (2010) examined the impact of using fair value on banks through studying the effect of fair value on current financial performance indicators, where financial ratios based on the income statement and financial position statement were used. This study also sought to know the effect of fair value on the ability of banks to financing their clients. The study was applied on (10) banks operating in Jordan, and its period was (2001-2008), and it used simple linear regression analysis. One of the results is that fair value affects EPS, but there is no effect of fair value on dividend, current, quick and debt ratios. Among the most important recommendations of this study was the necessity for interested parties of financial statements of Jordanian banks to review fair value data and financial performance indicators when making their decisions, as well as the emphasis on the importance of Jordanian banks' compliance with accounting standards related to estimate fair value and to treat revaluation surplus. Finally, since fair value has an impact on net income, dividends should not include gains resulting from revaluation using fair value accounting.

Alessa (2012) assessed whether financial statements issued by Jordanian banks fulfill the requirements of presentation and disclosure required by IFRS 7, whereby the researcher summarized this standard in the form of items to be disclosed, then a survey of financial reports for 2008 was conducted for (14) Jordanian banks to know the extent these items are disclosed. The results demonstrated that Jordanian banks are obliged to disclose according to the requirements of IFRS 7, and there is a great deal of homogeneity in terms of information contained in financial reports of these banks. The study recommended an increase in the level of commitment of Jordanian banks to apply the standard for those items that are not well-mannered to disclose.

Xiaolu (2013) examined the relationship between fair value accounting and earnings management using financial data for a sample of US banks from 2009 to 2012. The researcher used regression models to predict earnings behavior. The results revealed that banks which show an increase in fair values in their financial statements for the current year present an increase in their earnings in the current and next years. The study also found that there is a positive relationship between using fair value and managing earnings; especially through fair values of available-for-sale securities, and this relationship exists either in public or private banks.

Yao et al. (2018) employed data from a sample of (210) international banks for the period (2009-2013). They tested the relationship between fair values of financial assets and earnings persistence. They documented that using fair values for balance sheet financial instruments improves earnings persistence. Specifically, the nondiscretionary fair value Level 1 assets (measured with observable inputs) are positively related with earnings persistence, while the Level 2 assets (measured with indirectly observable inputs) and Level 3 assets (measured using unobservable inputs) are not related with earnings persistence. However, the predictive power of discretionary fair-value measurement inputs (Level 2 and Level 3 assets) is moderated by countrywide institutional factors and this moderating effect is superior for Level 3 assets than for Level 2 assets.

### ***3.2 Predicting Cash Flows by Using Fair Value Accounting***

Bratten et al. (2012) investigated the ability of earnings resulted from using fair value accounting to predict future cash flows of US banks for the period (1993-2008). The results showed that the increased use of fair value accounting in financial statements enhance the ability of earnings to predict future cash flows. This result supports the views of the FASB and IASB. However, the study concluded that the ability of fair value accounting to improve the predictive power of earnings varies among banks.

Evans et al. (2014) analyzed the relationship between measuring financial instruments at fair value and future gains from using this measurement. The study also examined the ability of fair value to predict stock prices for US banks for the period (1994-2008). The researchers used the multiple regression method. The results of the study demonstrated that adjustments on securities using fair value are associated with future realized income from these securities, which means that unrealized gains and losses for the current period have a predictive ability to realized income for the next period. The study also showed that the ability to predict stock prices is improved with using fair value accounting.

Ehalaiye et al. (2017) examined the relationship between future financial performance and both fair values of financial assets and liabilities. The study was applied on US banks, and the researchers used multiple linear regression methods to analyze data. This research focused on studying the world financial crisis that occurred between 2008 and 2010 by using two periods; one of them before the financial crisis and the another one during the financial crisis; noting that years 2006 and 2007 were excluded from the two study periods in order to avoid any overlap in factors affecting them. The results proved that fair values of financial assets and liabilities predict operational future cash flows and earnings. Additionally, the study showed that fair value accounting; despite objections against using it during the financial crisis, has a predictive ability of future financial performance during the period of the financial crisis. Finally, the study indicated that the size of banks does not affect the predictive ability of fair value accounting; nevertheless, there is a modest rise for large banks in the predictive ability of fair value accounting for their financial performance.

He et al. (2018) argue that although main accounting standards boards around the world widely use fair value, prior evidence focuses on the relevance of fair value accounting for financial assets. Their paper provided a first evidence for the agricultural sector. They examine the ability of fair value of biological assets to predict future operating cash flows. Using all of the agricultural firms in Australia where fair value accounting was applied for the first time, they showed that biological-assets fair values do not provide any increase in the predictive ability for future cash flows, whether market prices or managers' estimations are used.

The contributions of our study compared with prior studies are that there is a limited number of studies -according to the researchers' knowledge- that dealt with the predictive ability of fair value through items of financial assets and liabilities, and most of the previous studies mainly focused on predicting future profits instead of predicting future cash flows. Furthermore, some Jordanian studies (e.g. Solayman, 2010) that examined the issue of fair value used a limited number of observations, while in our study, (130) observations are used. Jordanian studies focused on using items affected by the valuation of financial assets and liabilities at fair value, such as accumulated change in fair value in the statement of shareholders' equity, and unrealized gains and losses from fair value in the comprehensive income statement, while our study examines financial data that are directly valued using fair value through financial assets and liabilities items in the financial position statement. Additionally, given the results of some previous researches, which indicated that the application of fair value varies from one country to another based on changes in economic environment of each country, we empirically examine this point to compare with results of studies conducted in developed countries. According to the researchers' knowledge and through their review of many

studies, this topic has not been applied on Jordanian commercial banks. In our research, variables are used according to the disclosure requirements requested by the CBJ, as some research showed that there is a difference between the requirements of the CBJ and the requirements of international accounting standards in relation to fair value (Solayman, 2010).

## 4. STUDY METHODOLOGY

### 4.1 *Study Population and Sample*

The number of Jordanian commercial banks, according to the CBJ and the Amman Stock Exchange (ASE) is (13) banks, which are: Arab Bank, Jordan National (Ahli) Bank, Bank of Jordan, Cairo Amman Bank, Housing Bank for Trade and Finance, Jordan Kuwait Bank, Jordan Commercial Bank, Union Bank (Bank Al-Etihad), Invest Bank, Arab Jordan Investment Bank, Arab Banking Corporation, Jordan Money Bank (Capital Bank), Societe General Bank. Thus, the study population consists of (13) commercial banks, and it is itself the sample.

### 4.2 *Description of Jordanian Banking Sector*

Jordanian commercial banks are selected as the basis for this study as banks ranked the second among sectors of banking, insurance, real estate and diversified financial services, in terms of banks' high contribution to the gross domestic product (GDP), which amounted to (11147.6) million Jordanian dinars (15745.2 million US dollars) in 2014, when these sectors achieved (20%) of the GDP. In 2014, banks also achieved (24%) of the total trading volume of these sectors in the Amman Stock Exchange (Jordan Central Bank, 2015; Shaban et al., 2017).

In addition, the banking system characterized by their efficient decisions, ensuring stable flow of funds to other sectors and accelerating factors leading to growth (Department of Statistics, 2006). Moreover, the supervision on the banking sector is considered rigorous, as the CBJ is responsible for setting instructions that banks must follow, which leads to comparability among them. Furthermore, Jordanian commercial banks adhere to international standards relating fair value, as a number of studies provide evidence that Jordanian commercial banks adhere to international standards related to fair value (Alessa, 2012: 123). Financial state-

ments in banks generally contain financial instruments in a large way and are considered the basis for their business, and fair value is mostly used in valuating financial instruments according to the international accounting standards (Ehalaiye et al., 2017).

Jordanian Islamic banks are excluded from the study population and sample, as they have different nature of their business compared with commercial banks, and the way financial statements presented in Islamic banks differs from that in commercial banks.

It is worth to mention that the key financial values and indicators of Jordanian commercial banks are explained in Section 5.1 (Descriptive analysis).

### ***4.3 Study Period***

The study period is from 2005 to 2014. The study period is chosen to start from 2005, since the classification and order of financial statements before 2005 differ from those for 2005 and after 2005. The study period ends in 2014, because this research project has been started in 2016, and data were collected in that year when data were available from their sources until only 2014.

It is worth noting that the number of banks is always the same (13) banks during the study period (2005-2014).

### ***4.4 Study Variables***

This section contains the definition of variables and their symbols in the study models. They are as follows (Central Bank of Jordan, 2007: 129; Amman Stock Exchange, 2015):

#### ***4.4.1 Dependent variables***

1. Future operating cash flows for the first year ( $CF_{t+1}$ ).
2. Future operating cash flows for the second year ( $CF_{t+2}$ ).
3. Future operating cash flows for the third year ( $CF_{t+3}$ ).

#### 4.4.2 *Independent variables*

1. Operating cash flows for the current year (CF): are cash flows resulted from major activities that banks are established to be performed.
2. Fair value of net financial assets (FVNA): is calculated by financial assets minus financial liabilities.
3. Total fair value of financial assets (FVA): consists of (8) items, which are:
  - 1) Cash and balances in central banks (CCB): are cash and cash balances in the Central Bank, which mature within a period of (3) months.
  - 2) Balances in banks and financial institutions (BBF): are balances in banks and financial institutions that mature within a period of (3) months.
  - 3) Deposits in banks and financial institutions (DBF): are balances in banks and financial institutions that mature over a period of more than (3) months.
  - 4) Financial assets held for trading investment (TIN): include stocks, bonds and other financial assets in order to dispose of them during the subsequent year.
  - 5) Financial assets available for sale investment (AIN): include stocks, bonds and other financial assets that might be sold or held.
  - 6) Financial assets held-to-maturity investment (HIN): include treasury bills, government bonds and companies bonds.
  - 7) Investments in affiliates (IAF): are investments in those companies which a bank exercises effective influence on their decisions related to financial and operating policies (but a bank does not control them). A bank owns a ratio from (20%) to (50%) of voting rights.
  - 8) Direct credit facilities (net) (NDF): include facilities provided to individuals and companies in the form of loans, notes, and credit cards.
4. Total fair value of financial liabilities (FVL): consists of (4) items, which are:
  - 1) Customers deposits (CUD): represent deposits provided to a bank by its customers; either deposits for a term, savings accounts, or current accounts.
  - 2) Banks and financial institutions deposits (BFD): include current accounts, accounts under request, deposits for a term, and certificates of deposits.
  - 3) Cash margins (CMG): is cash that is deposited by customers in exchange for direct and indirect facilities.

- 4) Loans borrowed (LOB): are established to obtain financial sources to finance projects such as issuing bonds for housing loans.

Some studies (e.g. Song et al., 2010 and Ehalaiye et al., 2017) indicated that the size of banks could influence the relationship between current fair value items and the prediction of future operating cash flows. Therefore, this aspect is tested, but the researchers face problems with regard to the way of classifying banks according to their size. According to the researchers' knowledge, there is no classification from the CBJ for banks by their size, so the median of the total assets is used as in the Ehalaiye et al. (2017) study. When the size of the total assets of a bank is equal or greater than the median, the size of that bank is considered large, and if the size of the total assets of a bank is less than the median, the size of that bank is small.

It is worth noting that data for all study variables are collected from the Amman Stock Exchange and disclosures in financial reports of the study sample.

#### 4.5 Study Models

The researchers examine the ability of fair value accounting to predict future operating cash flows through three aspects:

##### 4.5.1 Use net fair value financial assets to predict future operating cash flows

Some studies showed that fair value of net assets reflects their current situation, so there might be a relationship between current fair value of net assets and future financial performance represented by future operating cash flows (Ehalaiye et al., 2017). This relationship is demonstrated using the efficient market hypothesis (EMH), especially the semi-strong form, which shows that market prices represent all available information, so those prices are expected to represent in unbiased manner expectations of investors regarding future cash flows of assets and liabilities, as market prices reflects fair values of assets and liabilities (Ehalaiye et al., 2017).

Hence, the following model is used to test this aspect (Ehalaiye et al., 2017):

$$CF_{t+j} = a_0 + a_1FVNA_t + a_2CF_t + \alpha_{t+j}$$



where:

$j$ : 1, 2, 3

$t$ : year

FVNA: fair value of net financial assets

CF: operating cash flows

$a_0$ : intercept

$a_1, a_2$ : variables coefficients

$\alpha$ : random error

It must be noted that current operating cash flow variable (CF $_t$ ) is inserted as an independent variable in all study models, since some studies showed that there is a relationship between current operating cash flows and future operating cash flows, so using current cash flows controls temporal features that could affect future cash flows. Current operating cash flow variable is used as a control variable to find out the predictive power of fair value items of financial assets and liabilities in the presence of current cash flow variable. (Ehalaiye et al., 2017).

#### 4.5.2 Use total fair value of financial assets and liabilities to predict future operating cash flows

$$CF_{t+j} = b_0 + b_1FVA_t + b_2FVL_t + b_3CF_t + \beta_{t+j}$$

where:

FVA: total fair value of financial assets

FVL: total fair value of financial liabilities

$b_0$ : intercept

$b_1, b_2, b_3$ : variables coefficients

$\beta$ : random error

#### 4.5.3 Use fair value of financial assets and liabilities items to predict future operating cash flows

$$CF_{t+j} = c_0 + c_1CCB_t + c_2BBF_t + c_3DBF_t + c_4TIN_t + c_5AIN_t + c_6HIN_t + c_7IAF_t + c_8NDF_t + c_9CUD_t + c_{10}BFD_t + c_{11}CMG_t + c_{12}LOB_t + c_{13}CF_t + \gamma_{t+j}$$

where:

CCB: cash and balances in central banks

BBF: balances in banks and financial institutions

DBF: deposits in banks and financial institutions

TIN: financial assets held for trading investment

AIN: financial assets available for sale investment

HIN: financial assets held-to-maturity investment

IAF: investments in affiliates

NDF: direct credit facilities

CUD: customers' deposits

BFD: banks and financial institutions deposits

CMG: cash margins

LOB: loans borrowed

$c_0$ : intercept

$c_1$  to  $c_{13}$ : variables coefficients

$\gamma$ : random error

The researchers believe that testing net financial assets alone, then testing total financial assets and liabilities separately, and likewise testing separately each item of fair value financial assets and liabilities enhances the benefit from this study where all possible effects are examined in terms of the ability of fair value accounting to predict future cash flows.

Data are collected from financial statements and disclosures in annual financial reports of Jordanian commercial banks. Moreover, financial data published by the ASE are used.

#### ***4.6 Statistical Techniques***

To analyze the study data and test its hypotheses, the following statistical analyses are applied by using the Statistical Package for the Social Sciences (SPSS):

1. Descriptive analyses: by using the most acceptable methods, which include mean, median, standard deviation, and minimum and maximum values.
2. Pearson and spearman correlation coefficients.
3. Multiple linear regression analysis: by using the pooled ordinary least squares (OLS) method to predict models and test all hypotheses.

4. Diagnostic tests: the following (2) tests are run:
  - a) The normal distribution of variables data.
  - b) Variance Inflation Factor (VIF) and Condition Index (CI) tests: VIF shows how high correlation between variables increases the instability of their estimated coefficients. As a general rule, if the value of VIF for any independent variable is equal to (10) or more, then there is a problem of multicollinearity among independent variables (Yahya and Abdallah, 2007: 180). CI measures the sensitivity of coefficients estimates to simple changes in data. As a general rule, if the value of CI of a model is greater than (20), then there is a possibility of multicollinearity, but if CI is greater than (30), this definitely means the existence of this problem. It is worth noting that VIF is calculated for each of independent variables, while CI represents a general measure of all independent variables in a model as a whole. Finally, multicollinearity makes difficult to assess the individual importance of each independent variable separately, because if there is a strong correlation between independent variables, this might mean that they are responsible for the same change in the value of a dependent variable, which hides the additional explanatory power of each independent variable separately.

It is worth noting that the pooling OLS method assumes that the slopes of bank-specific independent variables are not systematically varied over time and across banks. There are techniques to control systematic differences among banks within panel data, such as the fixed effects and random effects approaches. The fixed effects method allows the constant term within the model to vary across banks and years, while coefficients remain stable across observations. In a random effects model it is assumed that there is a common intercept for the overall model, but that the 'effects' for individual banks vary from this common intercept in a random manner (Al-Attar and Hussain, 2004: 883). These methods control for bank-specific differences and reduce the unexplained part of the variation in the dependent variable within the OLS analysis. The tenor of the results should not generally be affected by using the OLS, fixed effects or random effects methods (Al-Attar and Hussain, 2004: 890). The researchers examine the explanatory power released by models using the OLS approach as in most prior studies of this type (e.g. Xiaolu, 2013; Evans et al., 2014; Ehalaiye et al., 2017).

## 5. RESULTS DISCUSSION AND HYPOTHESES TESTING

### 5.1 *Descriptive analysis*

Before testing hypotheses, it is necessary to clarify the main features of independent and dependent variables. Table (1) shows the main descriptive statistics for the study variables:

1. The first point to note from Table (1) is that there is a large dispersion for both total financial assets (FVA) and liabilities (FVL), as the standard deviations are (5.58) billion dinars and (4.72) billion dinars, respectively. This might be caused by variations in sizes of Jordanian commercial banks. Moreover, FVA is greater than FVL. The mean of FVA (3.11 billion dinars) is higher than the mean of FVL (2.67 billion dinars). This result indicates that Jordanian commercial banks are subject to control over the ratio of assets to liabilities, and this is confirmed by the CBJ that banks must maintain high liquidity to enable them to pay their obligations without the need to take procedures to provide liquidity urgently, which lead to selling assets at prices that do not reflect their true value.

Table (1):

DESCRIPTIVE STATISTICS

Variable	Observations No.	Mean*	Median*	Standard Deviation	Minimum*	Maximum*
<b>CF<sub>t</sub></b>	130	0.10	0.04	0.28	-0.77	1.69
<b>CF<sub>t+1</sub></b>	117	0.11	0.05	0.29	-0.77	1.69
<b>CF<sub>t+2</sub></b>	104	0.13	0.06	0.29	-0.47	1.69
<b>CF<sub>t+3</sub></b>	91	0.14	0.06	0.29	-0.16	1.69
<b>FVNA</b>	130	0.44	0.13	0.89	-0.01	4.10
<b>FVA</b>	130	3.11	1.30	5.58	0.15	25.32
<b>FVL</b>	130	2.67	1.16	4.72	0.13	21.22
<b>CCB</b>	130	0.49	0.18	0.93	0.02	4.65
<b>BBF</b>	130	0.44	0.17	0.88	0.02	4.32
<b>DBF</b>	130	0.03	0.003	0.09	0.00	0.40
<b>TIN</b>	130	0.03	0.003	0.10	0.00	0.72
<b>AIN</b>	130	0.19	0.04	0.44	0.00	3.48
<b>HIN</b>	130	0.41	0.15	0.85	0.00	5.17
<b>IAF</b>	130	0.08	0.00	0.28	0.00	1.28
<b>NDF</b>	130	1.43	0.63	2.49	0.08	11.05
<b>CUD</b>	130	2.07	0.89	3.56	0.11	17.10
<b>BFD</b>	130	0.34	0.13	0.68	0.002	3.23
<b>CMG</b>	130	0.23	0.07	0.50	0.02	2.45
<b>LOB</b>	130	0.04	0.01	0.08	0.00	0.38

\*: The amounts are to the nearest billion Jordanian dinars.

*t*: year; CF: operating cash flows; FVNA: fair value of net financial assets; FVA: total fair value of financial assets; FVL: total fair value of financial liabilities; CCB: cash and balances in central banks; BBF: balances in banks and financial institutions; DBF: deposits in banks and financial institutions; TIN: financial assets held for trading investment; AIN: financial assets available for sale investment; HIN: financial assets held-to-maturity investment; IAF: investments in affiliates; NDF: direct credit facilities; CUD: customers' deposits; BFD: banks and financial institutions deposits; CMG: cash margins; LOB: loans borrowed.

2. The largest value of mean after the means for FVA and FVL is that for customers' deposits (CUD) (2.07 billion dinars), so Jordanian commercial banks mainly rely on deposits from clients in order to finance their credit business. On the other hand, direct credit facilities (NDF) is obtained an average (1.43) billion dinars, which immediately comes after CUD. This indicates the efficiency of banks in granting credit facilities to individuals

and companies in exchange for deposits from clients. It is worth noting that Jordanian commercial banks significantly use financial guarantees when they grant credit facilities, as the mean for cash margins (CMG) is (0.23) billion dinars, which constitutes (16%) compared to the mean of NDF (1.43 billion dinars), so banks reduce risks associated with granting credit facilities as they have financial guarantees.

3. Compared to financial assets available for sale investment (AIN) and financial assets held-to-maturity investment (HIN), Jordanian commercial banks do not significantly maintain financial assets held for trading investment (TIN), as its mean is only (0.03) billion dinars. The goal might be that the income statement is not significantly affected by the revaluation of these assets at fair value, as this must be done at the end of each fiscal year and the difference from the revaluation between fair value and cost is presented in the income statement, so the lack of TIN means that there is no inconsistency in earnings from one year to another. Hence, Jordanian commercial banks have an advantage, which is profits and cash flows are mainly due to operating not investing activities. On the other hand, Jordanian banks tend to keep long-term financial investments, as this can be noted from the mean of HIN (0.41 billion dinars), which is much higher than those of TIN (0.03 billion dinars) and AIN (0.19 billion dinars).
4. We observe that Jordanian commercial banks do not invest in affiliates in which a bank does not have control over their decisions, as the mean of investments in affiliates (IAF) is only (0.08) billion dinars. This might be due to that banks depend on financing their internal operating activities and use all available resources to do so without regard to hugely investing in other companies. Additionally, a bank might prefer to invest in subsidiary companies in which the control percent exceeds (50%) of their shares.
5. It can be noted that the median for all variables is less than their mean, so the number of observations whose values are less than the mean is more than those whose values are greater than the mean. This indicates that observations tend to smaller values.
6. Finally, FVA is the most dispersed from the mean, as its standard deviation is (5.58) billion dinars, while loans borrowed (LOB) is the least dispersed, as its standard deviation is only (0.08) billion dinars.

It is worth noting that the number of observations is (130) for (13) Jordanian commercial banks and for the study period (2005-2014) of (10) years, so the number of observations decreases by (13) when predicting operating cash flows for the first year to become (117) observations, and upon predicting the second year to become (104) observations, and to become (91) observations when predicting the third year.

To verify the objectivity of study results, a Kolmogorov-Smirnov test (K-S test) is conducted in order to ensure that data is free of statistical problems that might negatively affect the results of testing hypotheses, as the lack of a normal distribution for data might arise fake relationships between independent and dependent variables. It is found that values of (Z) (untabulated) do not reach the level of statistical significance of 0.05 or less for all study variables, so data are normally distributed.

### 5.2 Correlation Matrix

Table (2) shows the correlation matrix presenting both Pearson and Spearman coefficients for the main study variables.

We note from Table (2) that the Pearson correlation coefficients among independent variables are less than (0.80). Therefore, there is no problem of multicollinearity, which affect the integrity of results (Ehalaiye et al., 2017; Gujarati et al., 2017), noting that the researchers conduct the nonparametric Spearman test among independent variables to analyze the sensitivity of the previous results, and the same results are relatively reached. Pearson and Spearman tests (untabulated) are also conducted among other independent variables, which include the (8) items of financial assets and the (4) items of financial liabilities. There is generally no problem of multicollinearity among these variables.

Table (2):

#### CORRELATIONS STATISTICS

Variable	CF <sub>t</sub>	FVNA	FVA	FVL
CF <sub>t</sub>		0.505*	0.536*	0.538*
FVNA	0.343*		0.681*	0.552*
FVA	0.378*	0.533*		0.789*
FVL	0.386*	0.401*	0.762*	

Correlations above (below) diagonal represent Pearson (Spearman) coefficients.

\*: indicate that the correlation coefficient is statistically different from zero and significant at the 0.05 level using a two-tailed test.

t: year; CF: operating cash flows; FVNA: fair value of net financial assets; FVA: total fair value of financial assets; FVL: total fair value of financial liabilities.

Number of observations: 130.

### 5.3 Hypotheses Testing

The decision rule is chosen for testing the study hypotheses is that the null hypothesis (H<sub>0</sub>) is accepted if the calculated value of (T) or (F) is less than its tabulated value, so it is statistically significant at a level of significance greater than (0.05), which corresponds to a level of confidence less than (0.95), while the H<sub>0</sub> is rejected if the calculated value of (T) or (F) is greater than its tabulated value, so it is statistically significant at the significance level of (0.05) or less, which corresponds to a confidence level of (0.95) or more.

The first hypothesis: H<sub>01</sub>: There is no statistically significant predictive ability of fair value accounting data in predicting future operating cash flows of Jordanian commercial banks for three subsequent years.

The first sub- hypothesis emerges from the main hypothesis is:

***H<sub>01/1</sub>: There is no statistically significant predictive ability for fair value accounting data through net financial assets in predicting future operating cash flows of Jordanian commercial banks for three subsequent years.***

This hypothesis is tested by using the multiple linear OLS regression analysis. Table (3) presents the results:

Table (3):

#### OLS REGRESSION ANALYSIS: USE NET FAIR VALUE FINANCIAL ASSETS TO PREDICT FUTURE OPERATING CASH FLOWS FOR THREE SUBSEQUENT YEARS

Variable	CF <sub>t+1</sub>	CF <sub>t+2</sub>	CF <sub>t+3</sub>
<b>Intercept</b>	0.003 (1.50)	0.004* (2.25)	0.004* (2.37)
<b>CF</b>	0.38* (4.67)	0.32* (4.12)	0.24* (2.86)
<b>FVNA</b>	0.96* (11.35)	0.85* (9.61)	0.46* (5.63)
<b>Adjusted R<sup>2</sup></b>	0.66	0.61	0.63
<b>Model F-value</b>	97.50*	81.49*	88.57*
<b>Observations</b>	117	104	91

\*: indicate statistically significant at the 0.05 level using a two-tailed test.

Numbers above parentheses represent standardized coefficients and numbers in parentheses represent *t*-values.

*t*: year; CF: operating cash flows; FVNA: fair value of net financial assets.



1. Table (3) shows that the overall goodness of fit for the model in terms of the R-squared ( $R^2$ ) for the first, second and third years are (0.66), (0.61), and (0.63), respectively. This means that the two independent variables (net financial assets and current operating cash flows) account for (66%), (61%), and (63%) of the variance in the dependent variable (future operating cash flows) for the first, second and third years, respectively. Hence, it is concluded that fair value accounting data through net financial assets provide information that can be used to predict future operating cash flows for the next three years in Jordanian commercial banks. The calculated  $F$ -values for the first, second and third years are (97.50), (81.49), and (88.57), respectively and all of them are statistically significant at the level ( $\alpha \leq 0.05$ ).
2. As shown in Table (3), the values of (Beta) for current cash flows are (0.38), (0.32), and (0.24) for the first, second and third years, respectively, and the calculated  $t$ -values corresponding to them are (4.67), (4.12), and (2.86) for the first, second and third years, respectively. All these values are statistically significant at the level of ( $\alpha \leq 0.05$ ). With regard to net financial assets, the (Beta) and ( $t$ -value) are (0.96) and (11.35), respectively, for the first year; (0.85) and (9.61), respectively, for the second year; and (0.46) and (5.63), respectively, for the third year. All these values are also statistically significant at the level of ( $\alpha \leq 0.05$ ).

The untabulated results show that the variance inflation coefficients (VIF) do not exceed (10) for both current cash flows and net financial assets. This indicates that there is no correlation between the two independent variables in their explanatory ability of the dependent variable for three years ahead. The researchers also use the Condition Index (CI) (untabulated) to test multicollinearity among independent variables in all hypotheses, and the same results of using the VIF are reached.

The summary of testing the first sub-hypothesis is that all models for the first, second and third year are statistically significant, so we reject the null hypothesis and accept the alternative hypothesis, that is: "There is statistically significant predictive ability for fair value accounting data through net financial assets in predicting future operating cash flows of Jordanian commercial banks for three subsequent years".

***H01/2: There is no statistically significant predictive ability for fair value accounting data through total financial assets and total financial liabilities in predicting future operating cash flows of Jordanian commercial banks for three subsequent years.***

This hypothesis is tested by using the multiple linear OLS regression analysis. Table (4) presents the results:

1. It is clear from Table (4) that the calculated ( $F$ -values) of the models are (84.73), (61.86), and (68.64), respectively, which indicate that all models

for the first, second and third years are statistically significant at the level of significance (0.05). The determination coefficients ( $R^2$ ) are (0.74), (0.65), and (0.64), respectively, so independent variables explain (74%) (65%) (64%), respectively, of changes in the dependent variable.

- It is also clear from Table (4) that the Beta coefficients of current operating cash flow for the first, second and third years are (0.37), (0.35), and (0.32), respectively, and  $t$ -values corresponding to them are (4.75), (4.42), and (3.80), respectively. All these values are statistically significant at a level of 0.05 or below. For total financial assets, Beta and  $t$ -value are (0.81) and (8.95) respectively in the first year, (0.65) and (6.25) respectively in the second year, and (0.57) and (2.09) in the third year. All of them are significant at ( $\alpha \leq 0.05$ ). The Betas for total financial liabilities in the models for the first, second and third years equal to (0.43), (0.32), and (0.28), respectively, and the  $t$ -values corresponding to them are (1.98), (4.14), and (1.98), respectively. All these values are significant at the level of ( $\alpha \leq 0.05$ ).

Table (4):

OLS REGRESSION ANALYSIS: USE TOTAL FAIR VALUE OF FINANCIAL ASSETS AND LIABILITIES TO PREDICT FUTURE OPERATING CASH FLOWS FOR THREE SUBSEQUENT YEARS

Variable	$CF_{t+1}$	$CF_{t+2}$	$CF_{t+3}$
<b>Intercept</b>	0.002 (1.001)	0.003 (1.66)	0.003 (1.77)
<b>CF</b>	0.37* (4.75)	0.35* (4.42)	0.32* (3.80)
<b>FVA</b>	0.81* (8.95)	0.65* (6.25)	0.57* (2.09)
<b>FVL</b>	0.43* (1.98)	0.32* (4.14)	0.28* (1.98)
<b>Adjusted <math>R^2</math></b>	0.74	0.65	0.64
<b>Model <math>F</math>-value</b>	84.73*	61.86*	68.64*
<b>Observations</b>	117	104	91

\*: indicate statistically significant at the 0.05 level using a two-tailed test.

Numbers above parentheses represent standardized coefficients and numbers in parentheses represent  $t$ -values.

$t$ : year; CF: operating cash flows; FVA: total fair value of financial assets; FVL: total fair value of financial liabilities.

We conclude that the statistical analysis of the second sub-hypothesis confirms the validity of the models for the first, second and third year, so we reject the null hypothesis and accept the alternative hypothesis which states: “There is statistically significant predictive ability for fair value accounting data through total financial assets and total financial liabilities in predicting future operating cash flows of Jordanian commercial banks for three subsequent”.

***H01/3: There is no statistically significant predictive ability for fair value accounting data through financial assets items and financial liabilities items in predicting future operating cash flows of Jordanian commercial banks for three subsequent years.***

This hypothesis is tested by using the multiple linear OLS regression analysis. Table (5) presents the results:

1. It is clear from the results presented in Table (5) that the determination coefficient ( $R^2$ ) is (0.90) for the first-year model, so independent variables represented current operating cash flows, eight financial assets items, and four financial liabilities items explain the percentage of (90%) of the variation in the dependent variable of future operating cash flows. Moreover, the  $F$ -value for the first-year model is (58.13), which is statistically significant at the level ( $\alpha \leq 0.05$ ). Thus, financial assets and liabilities items valued at fair value provide information that could be used to predict future operating cash flows for the first year in Jordanian commercial banks.

It is also clear that Beta and  $t$ -value for current cash flows are (0.52) and (5.83), respectively, which are significant at the level of ( $\alpha \leq 0.05$ ).

Table (5):

**OLS REGRESSION ANALYSIS: USE FAIR VALUE OF FINANCIAL  
ASSETS AND LIABILITIES ITEMS TO PREDICT FUTURE OPERATING  
CASH FLOWS FOR THREE SUBSEQUENT YEARS**

<b>Variable</b>	<b>CF<sub>t+1</sub></b>	<b>CF<sub>t+2</sub></b>	<b>CF<sub>t+3</sub></b>
<b>Intercept</b>	0.001 (0.78)	0.000 (0.039)	0.001 (0.15)
<b>CF</b>	0.52* (5.83)	0.48* (4.31)	0.48* (2.69)
<b>CCB</b>	0.05 (0.13)	0.56* (4.90)	0.73 (1.84)
<b>BBF</b>	0.83* (2.74)	0.58* (5.33)	0.61 (1.60)
<b>DBF</b>	0.17 (1.25)	0.37* (1.99)	0.01 (0.07)
<b>TIN</b>	0.59* (4.66)	0.32* (1.97)	0.08 (0.49)
<b>AIN</b>	0.05 (0.57)	0.11 (0.77)	0.25* (2.06)
<b>HIN</b>	0.08 (0.69)	0.14 (0.97)	0.26* (2.93)
<b>IAF</b>	0.51* (1.96)	0.12 (0.32)	0.22 (0.61)
<b>NDF</b>	0.43* (3.81)	0.57* (5.21)	0.16 (0.22)
<b>CUD</b>	0.41* (1.99)	0.69* (4.89)	0.48* (2.58)
<b>BFD</b>	0.15 (0.63)	0.29 (0.78)	0.59* (3.18)
<b>CMG</b>	0.58* (6.24)	0.60* (4.23)	0.47* (2.55)
<b>LOB</b>	0.17* (2.51)	0.06 (0.56)	0.08 (0.73)
<b>Adjusted R<sup>2</sup></b>	0.90	0.81	0.87
<b>Model F-value</b>	58.13*	30.94*	54.73*
<b>Observations</b>	117	104	91

\*: indicate statistically significant at the 0.05 level using a two-tailed test.

Numbers above parentheses represent standardized coefficients and numbers in parentheses represent *t*-values.

*t*: year; CF: operating cash flows; CCB: cash and balances in central banks; BBF: balances in banks and financial institutions; DBF: deposits in banks and financial institutions; TIN: financial assets held for trading investment; AIN: financial assets available for sale investment; HIN: financial assets held-to-maturity investment; IAF: investments in affiliates; NDF: direct credit facilities; CUD: customers' deposits; BFD: banks and financial institutions deposits; CMG: cash margins; LOB: loans borrowed.

Betas and  $t$ -values for some items of financial assets are statistically significant, which are: balances in banks and financial institutions (BBF), financial assets held for trading investment (TIN), investments in affiliates (IAF); direct credit facilities (NDF).

Regarding financial liabilities items, Beta and  $t$ -value for customers' deposits (CUD) are (0.41) and (1.99), respectively, which are significant at the level of ( $\alpha \leq 0.05$ ). The variable of banks and financial institutions deposits (BFD) shows that Beta and  $t$ -value for it are (0.15) and (0.63), respectively, which are insignificant, while for cash margins (CMG), Beta and  $t$ -value are (0.58) and (6.24), respectively, which are significant. Finally, for loans borrowed (LOB), Beta and  $t$ -value are (0.17) and (2.51), respectively, which are significant.

2. For the second-year model, the ( $R^2$ ) is (0.81), and the  $F$ -value are (30.94), which are statistically significance. The Beta and  $t$ -value for current cash flow is (0.48) and (4.31), which are significant. For financial assets items, the Beta and  $t$ -values are significant for only the following variables: CCB, BBF, DBF, TIN, and NDF. With regard to financial liabilities items, the Beta and  $t$ -values are significant for only CUD and CMG.
3. Finally, the ( $R^2$ ) for the third-year model is (0.87), and the  $F$ -value is (54.73), which are statistically significance. The Beta and  $t$ -value for current cash flow are (0.48) and (2.69), which are significant. For financial assets items, the Beta and  $t$ -values are significant for only AIN and HIN. Regarding financial liabilities items, the Beta and  $t$ -values are significant for CUD, BFD, and CMG.

Based on the above results of the statistical analysis of the third sub-hypothesis, we reject the null hypothesis and accept the alternative hypothesis, meaning: "There is statistically significant predictive ability for fair value accounting data through financial assets items and financial liabilities items in predicting future operating cash flows of Jordanian commercial banks for three subsequent years".

***The second hypothesis: H02: There are no statistically significant differences among Jordanian commercial banks according to their size with regard to the predictive ability of fair value accounting data in predicting future operating cash flows for three subsequent years.***

To test this hypothesis, a multiple linear regression analysis is applied on the first model related to net financial assets in order to know the ability of fair value accounting data to predict future operating cash flows when taking into account the size of banks. Banks are divided by using the median of total assets, and it is decided that when the size of total assets of a bank is equal or greater than the median, then it is considered large, but if the size of total assets of a bank is less than the median, then it is considered small (Ehalaiye et al., 2017). Table (6) presents the results:

1. Table (6) shows that in the group of small Jordanian commercial banks whose total assets are below the median, the ( $R^2$ ) for the first, second and third years are (0.43), (0.39), and (0.27), respectively. This means that the two independent variables (fair value of net financial assets and current operating cash flows) explain (43%), (39%), and (27%) of the variance in the dependent variable (future operating cash flows) for the first, second and third years, respectively. The  $F$ -values for the first, second and third years are (21.20), (19.52), and (12.55), respectively, which are statistically significant at the level of ( $\alpha \leq 0.05$ ).
2. For large Jordanian commercial banks group, whose total assets are equal or above the median, the ( $R^2$ ) for the first, second and third years are (0.63), (0.57), and (0.60), respectively. Hence, net financial assets and current operating cash flows explain about (63%), (57%), and (60%) of the variance in future operating cash flows for the first, second and third years, respectively. The  $F$ -values for the first, second and third years equal (39.04) (30.28) (31.08), respectively, and they are significant at a level of ( $\alpha \leq 0.05$ ).

Table (6):

**OLS REGRESSION ANALYSIS: USE NET FAIR VALUE FINANCIAL ASSETS TO PREDICT FUTURE OPERATING CASH FLOWS FOR THREE SUBSEQUENT YEARS ACCORDING TO THE SIZE OF BANKS**

Variable	Below Median			Equal or Above Median		
	CF <sub>t+1</sub>	CF <sub>t+2</sub>	CF <sub>t+3</sub>	CF <sub>t+1</sub>	CF <sub>t+2</sub>	CF <sub>t+3</sub>
Intercept	0.002 (1.10)	0.001 (0.542)	0.002 (1.55)	0.002 (0.92)	0.002 (1.39)	0.002 (1.54)
CF	0.31* (4.18)	0.32* (3.21)	0.35* (2.47)	0.34* (4.41)	0.40* (4.13)	0.40* (3.30)
FVNA	0.31* (2.37)	0.43* (3.31)	0.33* (2.30)	0.93* (7.11)	0.83* (6.21)	0.44* (3.68)
Adjusted R <sup>2</sup>	0.43	0.39	0.27	0.63	0.57	0.60
Model $F$ -value	21.20*	19.52*	12.55*	39.04*	30.28*	31.08*
Observations	58	52	45	59	52	46

\*: indicate statistically significant at the 0.05 level using a two-tailed test.

Numbers above parentheses represent standardized coefficients and numbers in parentheses represent t-values.

$t$ : year; CF: operating cash flows; FVNA: fair value of net financial assets.

3. It is also clear from Table (6) that Betas for current cash flows in the small banks group are (0.31), (0.32), and (0.35) for the first, second and third years, respectively, and their corresponding  $t$ -values are (4.18) (3.21) (2.47), respectively, which are significant at the level of ( $\alpha \leq 0.05$ ). While Betas and  $t$ -values for net financial assets are (0.31) and (2.37), respectively for the first year, (0.43) and (3.31), respectively for the second year, and (0.33) and (2.30), respectively for the third year. All of them are significant at ( $\alpha \leq 0.05$ ) level.
4. For the large banks group, Betas and  $t$ -values for current cash flows are (0.34) and (4.41), respectively for the first year; (0.40) and (4.13), respectively for the second year; and (0.40) and (3.30), respectively for the third year. All of them are significant at the level of ( $\alpha \leq 0.05$ ). For net financial assets, Betas and  $t$ -values are (0.93) and (7.11), respectively for the first year; (0.83) and (6.21), respectively for the second year; and (0.44) and (3.68), respectively for the third year. All are significant at ( $\alpha \leq 0.05$ ) level.

It is worth noting that the values of VIF for the independent variables (untabulated) are less than (10), whether in the small banks group or in the large banks group for the first, second and third years. Thus, there is no multicollinearity problem.

According to the above results, it can be observed that the predictive abilities for all the first, second and third future years are not affected by the size of banks, as they are statistically significant for either small or large banks. This leads us to accept the null hypothesis that states: "There are no statistically significant differences among Jordanian commercial banks according to their size with regard to the predictive ability of fair value accounting data in predicting future operating cash flows for three subsequent years". It is worth to mention that the null hypothesis should be rejected for each group of small and large banks because the predictive abilities for the first, second and third years are statistically significant for both groups of small and large banks, so we accept the main second null hypothesis as there are no differences among banks according to their size with regard to the predictive ability of fair value accounting data.

Nevertheless, it can be observed that the predictive ability of fair value accounting in predicting future operating cash flows is clearly greater for large-sized banks (equal or above the median) compared to small-sized banks (below the mediator) for all the first, second and third future years.

Finally, it must be noted that the researchers test the robustness of the results by re-conducting statistical tests on the other two models (the model for total financial assets and liabilities and the model for financial assets and liabilities items). It is found that there are no statistically significant differences among Jordanian commercial banks according to their size.

It is worth noting that the number of banks in each group is not equal, because the observations are bank-year observations. This means that the same bank could be in both groups for its different bank-year observations, as this depends on the value of each bank-year observation if it is above or below the median. Moreover, the number of bank-year observations is equal in each group, as the median divides bank-year observations into two equal groups in terms of their number of observations.

## 6. STUDY CONCLUSIONS

In the previous section, we discussed the results of the statistical analyses of the study data that are conducted to mainly demonstrate the predictive ability of fair value accounting to predict future operating cash flows for the next three years, and also to examine whether this ability could be affected by differences in size of Jordanian commercial banks. The study period extends from 2005 to 2014, and financial assets and liabilities items valued at fair value in the statement of financial position are used, which must be disclosed according to the Central Bank of Jordan (CBJ) and the International Financial Reporting Standards (IFRS). The following key findings are concluded. The study demonstrates that there is a statistically significant relationship between fair value accounting data and future operating cash flows for the next three years. This result confirms that fair value accounting has predictive power, as it represents projections of future cash flows. This conclusion corresponds prior findings of Ehalaiye et al. (2017) and Bratten et al. (2012), and also confirms what both the International Accounting Standards Board (IASB) and the American Financial Accounting Standards Board (FASB) assert that financial assets and liabilities valued at fair value provide higher predictive ability and a better representation of relevance. However, our results are inconsistent with He et al. (2018) who found that biological-assets fair values in the agricultural sector do not provide any increase in the predictive ability for future cash flows. The researchers believe that the reason is the different nature of the agricultural sector compared with the banking sector, and the items of financial statements presented for agricultural firms differ from those for banks.

Specifically, the study concludes that there is a statistically strong relationship between fair value of net financial assets (resulting from subtracting financial liabilities from financial assets) and the prediction of future operating cash flows for the next three years. Moreover, the study shows that there is a statistically significant relationship between total financial assets and liabilities and the prediction of future operating cash flows for subsequent three periods, so financial assets



(liabilities) valued at their fair values provide information about future cash flows that could be collected from (paid for) these assets (liabilities).

The study reveals that when the predictive ability for fair value accounting is assessed through the items of financial assets and liabilities in detail, most of those items have predictive power of future operating cash flows for the next three years; nonetheless, there are a number of items that do not have a predictive power, bearing in mind that when those items are added to the variables of total financial assets and liabilities, these variables have predictive power of future cash flows.

Last but not least, the study proves that there are no statistically significant differences among Jordanian commercial banks according to their size with regard to the ability of fair value accounting data to predict future operating cash flows for the next three years. Results indicate that there is statistical evidence of the ability of fair value accounting to predict future cash flows for three subsequent periods, whether for small banks (the size of their assets is less than the median) and for large banks (the size of their assets is equal or greater than the median); however, it is clearly noted that this predictive capacity of large-sized banks is greater than that of small-sized banks. These findings mirror the conclusions of Ehalai et al. (2017), Evans et al. (2014) and Barth (2006).

## 7. STUDY RECOMMENDATIONS & FUTURE RESEARCH

After the problem of the study is addressed and hypotheses are tested within a theoretical and analytical framework, and based on the results concluded in this study, the researchers recommend maintaining the continuity of applying fair value accounting by Jordanian commercial banks and following any updates related to fair value accounting in the IFRS. Moreover, using reliable financial data valued at fair value in future strategic decisions, as these data have a high predictive ability to predict future operating cash flows. Working to better and wider applying of fair value accounting in Jordanian companies as it provide financial data that helps its users to efficiently predict future cash flows of these companies. Working to root a solid culture of fair value accounting by issuing special instructions that are suitable to the Jordanian economic environment, so that it includes clear mechanisms of using fair value by Jordanian companies. Paying attention to developing the performance of accountants and managers in Jordanian commercial banks and other companies in order to keep pace with the progress made in valuation methods of fair value accounting. With regard to future research, the researchers recommend conducting more research on the predictive ability of gains and losses resulting from using fair value accounting in the statement of comprehensive in-

come to predict future operating cash flows. Additionally, reapplying this study on other sectors of Jordanian companies that use fair value accounting, and also reapplying them to predict future earnings instead of operating cash flows.

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## PREDVIĐANJE BUDUĆIH OPERATIVNIH NOVČANIH TOKOVA U JORDANSKIM POSLOVNIM BANKAMA KORISTEĆI RAČUNOVODSTVENU FER VRIJEDNOST

### Sažetak

Cilj ovog rada je ispitati sposobnost fer vrijednosti računovodstvenih podataka u predviđanju budućih operativnih novčanih tokova, do tri godine unaprijed, u jordanskim poslovnim bankama, kao i testirati postoje li značajne razlike među bankama prema njihovoj veličini, s obzirom na sposobnost fer vrijednosti računovodstvenih podataka u predviđanju novčanih tokova. Za analizu financijskih podataka koristi se metoda višestruke linearne regresije na populaciji ispitanika koja se sastoji od (13) jordanskih poslovnih banaka za razdoblje (2005.-2014.). Uzorak istraživanja jednak je populaciji ispitanika. Fer vrijednost financijske imovine i obveza koristi se u (3) modela. Prvi model sastoji se od neto financijske imovine; drugi model uključuje ukupnu financijsku imovinu i ukupne financijske obveze; dok treći model sadrži detaljne komponente financijske imovine i obveza. Studijom se zaključuje da fer vrijednosti računovodstvenih podataka (kroz neto financijsku imovinu, kroz ukupnu financijsku imovinu i ukupne financijske obveze te kroz stavke financijske imovine i financijskih obveza) imaju statistički značajnu sposobnost predviđanja budućih operativnih novčanih tokova jordanskih poslovnih banaka za tri naredne godine. Rezultati također pokazuju kako nema statistički značajnih razlika među jordanskim poslovnim bankama prema njihovoj veličini, u kontekstu sposobnosti fer vrijednosti računovodstvenih podataka u predviđanju budućih operativnih novčanih tokova do tri godine unaprijed. Ipak, sposobnost predviđanja je veća za velike banke. Studija preporuča održavanje kontinuiteta primjene računovodstva fer vrijednosti u jordanskim poslovnim bankama, kao i praćenje svih dopuna povezanih s računovodstvom fer vrijednosti u MSFI.

Ključne riječi: Predviđanje, Operativni novčani tokovi, Računovodstvo fer vrijednosti, Jordanske poslovne banke.