

Basel III, And Banking Risk; Do Basel III Factors Could Predict the Risk of Middle-Eastern Countries?

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Abstract

The global financial crisis in 2008 shows that the successive agreements Basel I, and II failed to stop the global financial collapse. Therefore, this research tries to answer the study question that; can Basel III enhancement give the banking sectors stability? Our data includes 324 listed from the largest banks across Middle East. Results from PLS-SEM analyses demonstrate bank risk is positive relationship related to charter value, information systems and Internal/External control systems. We find negative relationship among bank risk and market discipline. Following our finding, the result shows there is no relationship between bank risk and bank capital and the results suggest that Charter Value is the most important predictor of bank risk.

Keywords: Basel III, Bank Risk, Bank capital, charter value, information system, control system, market discipline, Middle East.

1. Introduction

The development of capital adequacy standard in banks came as a result of the growing sense that the fundamental issue in bank management – if not in the financial sector in general - is the issue of risk management. No doubt that risks in modern economy offers to trader's opportunities and challenges alike. Basel accord III came as a result of this fact, by setting the risk issue in the lead, thus it reflected this general approach (Alfara et al. 2016). Yet, the new recommendations are not just a revision or adjustment to Basel accord II by developing risk management methods, but include setting the concept of risk back to its natural scope which is the dependence on the market – as much as possible – in estimating these risks away from the random estimation. Basel III recommendations are not only a focus on risk management concept in general. But it also includes the restoration of the market's role in estimating these risks (BCBS 2010 , Allen, Chan et al. 2012).

(Sutorova and Tepy 2014) their study consecrates to theory they describe the Basel III regulatory standards and discuss that this regulation is not appropriate and will not block financial markets from facing future crises. In addition, they studied the empirical analysis of the influence of capital requirements according to Basel III. They found that the regulation of Basel III maybe will influence negatively the bank shares on the finance market value of the observed banks. (Wang 2014) writes about the significant relationship between capital adequacy and the value of banks, contrary to derivatives. Wang found that variegated operational and magnified banks are positively correlated with bank's values, leading to an increase in capital requirements and decrease in nonperforming loans, and finally resulting in the effectiveness of the economy.

(Miles, Yang et al. 2013) investigate the cost and the benefits from having capital surpassing their assets loss-absorbing capital or equity. In turn, the results have shown that banks are eligible to have capital higher than the capital requirement under Basel III. (Martin-Oliver, Ruano et al. 2013) investigate the new capital ratio according to Basel III impact on loans and interest rate for Spanish bank sector. The result has shown that the interest rate will increase through capital equity in the modified time as opposed to a stable situation. The new capital ratio according to Basel III is impacted by loans and interest rates for the Spanish bank sector. King examines a new Basel III liquidity among bank assets and liabilities.

(Mamiza Haq a 2014) investigate the impact of bank capital, market discipline and charter value as bank disciplinary tools on both bank equity risk, and they found that bank risk is positively related to bank capital and negatively related to charter value. (Hadad, Agusman et al. 2011) examined the impact of these regulatory. They found that the weakening of market discipline following the introduction of the blanket guarantee scheme, which shows the deposit insurance scheme being credible in the lower capital requirement environment. In this research we develop model and investigate the effect of bank capital, charter value, information system, control system and market discipline on bank risk.

2. Literature review and hypotheses development

2.1 Bank capital

For the previous twenty years and in special, following the global finance crisis, bank capital regulation and control have been the subject of deep debate, for policymaker and academics. Contemporary bank regulation modifications have firstly concentrated on modification the numerator of capital ratios, though changes to the modifications, i.e.,

risk-weighted assets have been restricted (Le Leslé 2012, Mamiza Haq a 2014, Xue 2016, Alfarrá 2016). Following (Rob 1999), and (Mamiza Haq a 2014) bank risk might initially reduce with rise in bank capital, but as the capital buffer builds-up banks might finally select to rise their risk levels. So, the first hypothesis with respect to bank capital are as follows:

Hypothesis H1: Bank risk initially decreases and then increases with bank capital.

2.2 Charter value

Charter value assistance to decrease the moral hazard issue in regarding to frank or implied safety net. Harmonious with this case, it is clear that there is a negative relationship among total risk and charter value (Fraser 2000, Konishi and Yasuda 2004). According to this discussion, it's clear that the total risk has negative relationship with charter value, systematic risk and idiosyncratic risk (Fraser 2000, Konishi and Yasuda 2004). On the other hand, several studies show that there is positive relationship among bank risk and charter value. Likelihood, this outcome as indicator for charter value chances to increase. We tendency more to (Mamiza Haq a 2014) and (Hellmann, Murdock et al. 2000) theoretical and experimental, results of (Tina M. Galloway 1997), and we expect that charter value decrease bank risk. So, the second hypothesis with respect to bank capital is as follows:

Hypothesis H2. An increase in charter value lead to an increase in Bank risk decreases

2.3 Information systems

In nowadays, information system is playing a very significant role in banking sectors. The management information system (MIS) has several definitions such as a combination of hardware, software, infrastructure and trained personnel organized to facilitate planning, control, coordination, and decision making in an organization (Eastburn and Boland 2015). Recently we have seen numerous occurrences of information security incidents, many of which involved with the attempts to acquire banking information for illegal profits and hence lead to increased business risk and lost revenues (Elisabeta JABA 2016, Mandal and Bagchi 2016). Therefore, the authors argue about the relationship among information system and bank risk. So, our third testable hypothesis is stated as follows:

Hypothesis H3. Bank risk decreases with develop Information systems.

2.4 Control systems

The banks use an advanced group of information technologies for upholding their management control systems and allowing to observe by government supervisors and business overseers (Eastburn and Boland 2015). Banks rely on an international system of data processing and information systems to offer their essential banking facilities and to manage the ganglion financial and macroeconomic basics of their environment (Li, Yang et al. 2016). The internal and external auditing considered as a lifeline for banks managers. It helps banking achieve its purposes by bringing a systematic, disciplined approach to assess and improve the efficiency of risk management, control, and governance. Therefore, our forth testable hypothesis is stated as follows:

Hypothesis H4. Bank risk decreases with increasing internal and external control.

2.5 Market discipline

The term of market discipline in banking sector refers to the situation where the private segment agents such as stockholders, depositors or creditors undertake different costs that are magnified by banking practices followed by banks that require taking additional risk, henceforth, the private sector agents have to take further actions while considering these costs (Mamiza Haq a 2014, Schmaltz, Pokutta et al. 2014). For instance, banks maybe punish by increase the interest rates if they haven't insured depositors like subordinated debt holders, how are uncovered bank risk-taking, which led to withdrawing deposits (Adrian, Covitz et al. 2015). Therefore, banks with great of subordinated debt are probable to display lesser levels of equity risk (Chen, Yen et al. 2015, Guochen PAN 2016, Ngalawa, Tchana et al. 2016). BCBS committee said that if the bank hasn't obligated in a specific level of risk, and the subordinated loan maybe face higher risk than the deposit insurance regime. So, the fifth hypothesis with respect to Market discipline is as follows:

Hypothesis H5. An increase in market discipline, a decrease in bank risk.

3. Methodology

3.1 Data collocation

This research uses data consists of 14 banks (Arab Bank, Cairo Amman Bank, Bank of Jordan, Housing bank for trade & finance, Jordan Commercial Bank, Jordan Kuwait Bank, Jordan Ahli Bank, Egyptian Arab Land Bank, H.S.B.C, Bank of Palestine, Commercial Bank, Arab Islamic Bank, Bank of Jerusalem, and The National Bank) across Middle East countries.

3.2 Empirical Models

This research tests the hypotheses through investigate the relationship among bank risk (BR) as independent variable and several independent variables following this model:

$$BR_i = \alpha + \alpha_1 BC_i + \alpha_2 CV_i + \alpha_3 IS_i + \alpha_4 CS_i + \alpha_5 MD_i + \epsilon \quad (1)$$

where *BR* is bank risk, *BC* is bank capital, *CV* is Charter value, *IS* is information system, *CS* control system, *MD* market discipline. All this variable we will investigate them as dependent variables using sub models as follow:

The model for bank capital is as follows:

$$BR_i = \alpha + \beta_1 CGP_i + \beta_2 BRR_i + \beta_3 IXI_i + \beta_4 CRM_i + \beta_5 MCR_i + \beta_6 RFR_i + \beta_7 DCP_i + \beta_8 CMR_i + \beta_9 SMC_i + \beta_{10} IPR_i + \beta_{11} QSE_i + \epsilon \quad (2)$$

where *CGP* is credit risk goals and procedures, *BRR* is bank responsible for revising the financial results, *IXE* is internal and external environment of the bank, *CRM* is executive credit risk management, *MCR* is measure and control risks, *RFR* is revising the financial results regularly, *DCP* is development of credit policies of the bank, *CMR* is credit risk management and the responsibility, *SM* is separates between measuring and controlling credit risk, *IPR* is identifying and analyzing the potential risks and *QSE* is qualified staff with sufficient experience.

$$BC_i = \alpha + \beta_1 CGC_i + \beta_2 CRP_i + \beta_3 CEC_i + \beta_4 CRG_i + \beta_5 CPA_i + \beta_6 PPA_i + \beta_7 ELP_i + \beta_8 EMP_i + \beta_9 DBD_i + \beta_{10} CPD_i + \beta_{11} SRP_i + \epsilon \quad (3)$$

where *CGC* is credit granting criteria, *CRP* is credit risk policies, *CEC* is changes to economic conditions, *CRG* is Credit risk guarantees, *CPA* is customer's periodic assessment', *PPA* is portfolio periodic assessment', *ELP* is the expected losses in the portfolio, *EMP* is the efficiency of monetary policy, *DBD* is deal with bad debts, *CPD* is Credit portfolio diversification, *SRP* is Sensitive risk pricing.

For charter value (*CV*) the model we will use as follow:

$$CV_i = \alpha + \beta_1 LCR_i + \beta_2 LNC_i + \beta_3 ICR_i + \beta_4 LQI_i + \beta_5 DRT_i + \beta_6 DHS_i + \beta_7 AIT_i + \epsilon \quad (4)$$

where *LNR* is local credit rating, *LCR* is The limited number of customers classified, *ICR* is internal credit rating systems, *LQI* is low quality of credit information, *DRT* is disclosure requirements and transparency, *DHS* is Develop human capacities and skills, *AIT* is advanced information technology.

To investigate information system (*IS*) we will use the model below:

$$IS_i = \alpha + \beta_1 RI_i + \beta_2 CP_i + \beta_3 MDS_i + \beta_4 IIS_i + \beta_5 EMR_i + \epsilon \quad (5)$$

where *RI* is reliability of information, *CP* is credit portfolio, *CEC* is Data of information management systems, *IIS* is internal information systems, *EMR* is Efficiency to manage credit risks.

We will investigate control system (*CS*) as follow:

$$CS_i = \alpha + \sum_{i=2}^n \alpha_i \beta_i IA_i + \beta_2 XA_i + \epsilon_i \quad (6)$$

where *CS* is dependent variable and both internal auditing *IA* and external auditing *XA* are independents variables. Then we will use sub models to investigate *IA* and *XA*. The sub models as follow:

$$IA_i = \alpha + \beta_1 EIA_i + \beta_2 IIA_i + \beta_3 ECM_i + \beta_4 DPR_i + \beta_5 LCR_i + \beta_6 DWC_i + \beta_7 DEP_i + \beta_8 DCE_i + \beta_9 AIR_i + \epsilon_i \quad (7)$$

where *EIA* is effective internal audit, *IIA* is Independent internal audit, *ECM* is evaluating credit management, *DPR* is determines the accuracy of credit portfolio risks, *LCR* is limiting credit risks, *DWR* is determine points of weakness in credit risk, *DEP* is determining any exceptions in the procedures, *DCE* is Detecting credit deterioration at an early stage, *AIR* is Assessment of the level and trends of credit risk.

$$XA_i = \alpha + \beta_1 IER_i + \beta_2 DEB_i + \beta_3 NTC_i + \beta_4 DRI_i + \beta_5 AAM_i + \beta_6 MAP_i + \beta_7 CBU_i + \beta_8 ACA_i + \beta_9 SRR_i + \epsilon_i \quad (8)$$

where *IER* is independent evaluation to the bank risk, *DEB* is determining the efficiency of board members in credit risk management, *NTC* is necessary review to the types of credit, *DRI* is depends on the results of the internal audit, *AAM* is assesses the ability of bank's management, *MAP* is monitors the aspects of the credit portfolio, *CBU* is Control the bank for urgent improvement of credit risk management, *ACA* is assesses the adequacy of bank capital compared to credit risk, *SRR* is sets restrictions to limit risks.

The market discipline (*MD*) model we will use as follow:

$$MD_i = \alpha + \beta_1 DP_i + \beta_2 PFR_i + \beta_3 AAL_i + \beta_4 APA_i + \beta_5 MMR_i + \beta_6 TSR_i + \epsilon_i \quad (9)$$

where *DP* is disclosure policy, *PER* is periodic financial performance reports, *AAL* is assessing the assets and liabilities of the bank, *APA* is accounting policies applied, *MMR* is applied methods in managing and measuring credit risk, *TSR* is periodic disclosure includes type and size of credit risk.

4. Analysis and Results

4.1 Plan analysis

Structural equation modeling (SEM) using the partial least squares (PLS) method was used to answer the research questions. In an external model, PLS analysis is used to estimate latent variables (LVs) based on the shared variance of observed variables, using the principal-component weights of the observed variables.

PLS analysis. The measurement model shows how each block of items relates to its construct or latent variable. The PLS results indicate that a satisfactory level of convergent validity was achieved, based on certain criteria. As shown in Table 1, all of the item loadings were greater than 0.70 (all significant, $p < 0.001$), with the exception of the item measuring BankRis, BankCap, and Charter whose loading was lower than the 0.70 threshold. However, this item was retained for the following two reasons. (1) According to (Chin 1998), a loading below the threshold is acceptable if the loadings of other items measuring the same construct are high. (2) The loading was still higher than the cutoff point of 0.4 recommended by some scholars (Hulland 1999). Discriminant validity is verified by measuring the difference between a construct's average variance extracted (AVE) value and its correlations with other constructs. To achieve a sufficiently high level of discriminant validity, the square root of the construct's AVE should be greater than its correlations with all other constructs (Kock 2012). As shown in Table 2, the threshold for discriminant validity was also exceeded.

Table 1 Combined loadings and cross-loadings

<i>Variables</i>	<i>BankRis</i>	<i>BankCap</i>	<i>Charter</i>	<i>DevIS</i>	<i>IntCont</i>	<i>ExtCont</i>	<i>MarketD</i>
CGP	-0.798	-0.133	-0.047	-0.108	-0.135	0.284	-0.061
RRR	-0.848	0.126	0.02	0.055	-0.048	0.166	0.211
IXE	0.845	0.004	-0.009	-0.104	0.186	0.046	-0.113
CRM	-0.861	0.097	0.074	-0.229	0.104	-0.009	-0.048
MCR	0.706	-0.173	0.073	-0.121	0.071	0.011	-0.119
RFR	0.611	0.089	-0.099	-0.103	-0.022	-0.011	-0.144
CGC	-0.085	0.906	0.037	-0.016	0.062	0.035	-0.053
CRP	-0.095	0.894	0.032	0.003	0.067	0.07	-0.041
CEC	-0.14	-0.831	-0.094	0.081	0.106	0.094	-0.232
CRG	0.15	-0.871	-0.031	0.006	0.078	0.02	-0.013
CPA	0.152	0.902	-0.005	0.034	-0.218	-0.073	0.004
PPA	-0.13	-0.904	0.075	0.022	0.204	-0.072	-0.041
ELP	-0.024	-0.931	0.093	0.049	-0.06	0.042	0.078
EMP	-0.151	-0.809	0.008	0.117	0.029	0.027	-0.073
DBD	0.01	-0.723	0.072	-0.219	-0.104	0.022	-0.118
CPD	0.264	-0.746	0.011	-0.228	-0.131	0.079	-0.033
SRP	-0.133	-0.855	0.025	-0.04	0.156	0.128	0.007
CGS	-0.146	-0.843	0.096	0.022	0.064	0.026	-0.16
LCR	-0.119	0.125	0.852	0.11	0.079	-0.025	0.013
LNC	0.265	0.017	-0.647	0.448	-0.086	0.11	-0.058
ICR	0.042	0.054	0.688	-0.009	0.105	-0.014	0.016
LQI	-0.004	-0.003	0.991	0.022	-0.027	0.005	0.007
DRT	0.029	-0.012	0.984	0.025	0.011	0.008	-0.01
DHS	0.017	0.006	0.992	0.015	-0.01	0.006	-0.008
RI	-0.114	0.042	0.028	0.699	0.162	-0.038	-0.09
CP	-0.007	-0.039	0.112	-0.626	0.144	0.118	0.033
DMS	0.019	-0.153	0.176	0.683	-0.021	-0.029	0.126
IIS	0.081	0.063	0.106	0.659	-0.042	-0.056	-0.188
EMR	0.097	-0.031	-0.014	0.709	-0.064	0.121	0.091
EIA	-0.089	-0.006	0.194	-0.051	0.65	-0.009	0.111
IIA	0.009	-0.027	0.124	0	-0.653	-0.015	0.109
ECM	0.03	-0.212	-0.005	-0.112	0.682	-0.096	-0.165
APR	0.097	-0.183	-0.036	0.116	0.605	-0.069	-0.082
LCR	-0.152	0.055	0.148	0.02	-0.705	-0.104	-0.007
DWC	0.259	0.083	-0.067	0.109	-0.711	0.102	0.006
IER	-0.329	-0.123	-0.006	-0.165	-0.105	0.637	-0.084
DEB	-0.009	-0.065	0.076	0.137	0.086	0.689	0.067

Variables	BankRis	BankCap	Charter	DevIS	IntCont	ExtCont	MarketD
RTC	-0.037	0.049	0.107	-0.105	0.074	0.65	0.161
DRI	0.001	0.2	0.134	0.002	0.048	-0.764	0.117
AAM	-0.034	0.003	-0.003	0.067	0.134	-0.604	0.202
MAP	-0.181	-0.021	0.113	-0.148	0.06	-0.643	0.097
DP	-0.115	-0.055	0.079	-0.039	0.024	-0.028	0.799
PER	0.108	0.163	0.016	-0.091	0.004	-0.002	0.736
AAL	0.035	-0.048	-0.041	-0.045	-0.086	0.006	-0.636
MMR	0.061	0.039	-0.037	0.088	0.105	-0.024	0.778
TSR	0.028	0.106	-0.048	-0.029	0.101	0.126	-0.729

Notes: Factor loadings greater than 0.40 are shown in boldface.

Table 2 Correlations among latent variables with square roots of AVEs, Latent variable coefficients window

	Bankris	BankCap	Charter	Develop	IntCont	ExContr	MarketD	InExCon
Bankris	0.844	0.092	0.054	0.125	0.07	0.071	-0.048	0.018
BankCap	0.092	0.754	0.078	0.062	0.287	0.059	-0.06	0.106
Charter	0.054	0.078	0.647	0.098	0.034	0.132	0.025	0.085
Develop	0.125	0.062	0.098	0.716	0.156	-0.008	-0.06	0.022
IntCont	0.07	0.287	0.034	0.156	0.698	0.074	-0.077	0.435
ExContr	0.071	0.059	0.132	-0.008	0.074	0.854	0.088	0.462
MarketD	-0.048	-0.06	0.025	-0.06	-0.077	0.088	0.789	0.791
InExCon	0.018	0.106	0.085	0.022	0.435	0.462	0.791	0.788

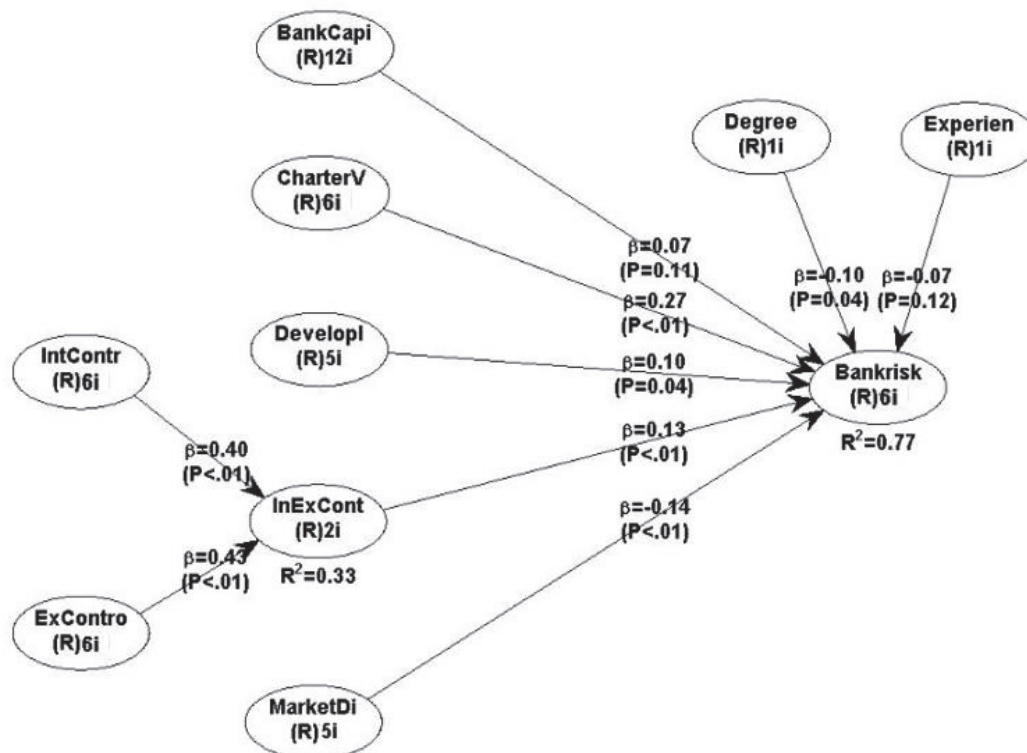
Notes: Square roots of average variances extracted (AVEs) shown in diagonal.

The hypotheses were assessed by examining the parameters of the PLS structural model. The R^2 values obtained for dependent variables indicate the predictive power of a theoretical model, and standardized path coefficients indicate the strength of the relationship between the independent and dependent variables. The results are shown in Fig. 1 and Table 3. The R^2 value of 0.77 indicates that the theoretical model explained a substantial amount of the variance in Bank Risk. In addition, the model accounted for 77% of the variance in *RE*. As the R^2 of a dependent variable must be at least 10% to ensure meaningful interpretation, the theoretical model demonstrated substantive explanatory power. Table 4 is demonstrating the effects of the independent variables on dependent variable BR which referring that the best predictor of Bank risk is *MD* with 0.115 coefficient, while the second effective variable is information system & control system with 0.112 coefficient. More plus, the results discover that there is no significant effect of bank capital on bank risk.

Figure 1 depicts the final structural model. The path coefficients can be taken as standardized beta weights, each of which was estimated after controlling for the effects of all of the other paths. To determine whether each path was significant, bootstrapping resampling (Gong 1983) was performed. The PLS parameters of a series of random subsamples of the total sample were repeatedly tested until significance could be estimated from the convergent finding.

4.2 Main Results

As shown in Fig. 1 and Table 5, the results suggest that CharterV is the most important predictor of BankRisk (17%) in terms of both status and quality, compared with MarketD (11.5%), InExCon (11.2%) and DevelopI(11.2%). Our results show that BankRisk is positively related to CharterV ($p < 0.01$), supporting H_2 . We also find support for H_4 ($p < 0.01$), according to which InEXcon is positively moderated the BankRisk. H_5 is also supported ($p < 0.01$), as our results demonstrate that an increase in MarketD leads to an increase in BankRisk. Findings shows that H_3 is supported as reports show that DevelopI is positively related to BankRisk($p < 0.05$). As results shows, H_1 is rejected, indicating that there is no relationship between BankCapi and BankRisk. Also, results demonstrate that the BankRisk would be increasing as CharterV, InExcont and DevelopI lift, while with an increase in MarketDi the BankRisk will decrease.



Average path coefficient (APC)=0.288, $P < 0.001$
 Average adjusted R-squared (AARS)=0.339, $P < 0.001$
 Average block VIF (AVIF)=1.032, acceptable if ≤ 5 , ideally ≤ 3.3
 Average full collinearity VIF (AFVIF)=3.051, acceptable if ≤ 5 , ideally ≤ 3.3
 Tenenhaus GoF (GoF)=0.487, small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36
 Sympton's paradox ratio (SPR)=1.000, acceptable if ≥ 0.7 , ideally = 1
 R-squared contribution ratio (RSCR)=1.000, acceptable if ≥ 0.9 , ideally = 1
 Statistical suppression ratio (SSR)=0.878, acceptable if ≥ 0.7
 Nonlinear bivariate causality direction ratio (NLBCDR)=0.933, acceptable if ≥ 0.7

Figure 1 Model fit and quality indices

Table 3 Path coefficients

	Bank Capital	Charter V	Develop IS	Market D	InExCon
Bank risk	0.068 ^b	0.265 ^a	0.096 ^a	-0.139 ^a	0.13 ^a

Note:

*All hypotheses were evaluated using two-tail tests.

a $p < 0.01$.

b $p < 0.1$

5. Discussion

Results reject the relationship of bank risk with bank capital. Though (NICOL'O 2005) argue that increase bank capital might increases total risk, we didn't find similar relationship. Actually previous findings on the relationship of bank capital and bank risk is quite equivocal while we find no relationship. It means that with changing in bank risk there is no significant change in the risks that banks in middle east are dealing with.

The analysis result concerning the relationship among charter value and bank risk, figure 1 has been shown a positive relationship. This support the second hypotheses (H_2). An increase in charter value leads to an increase in Bank risk. Our result is same with (Hellmann, Murdock et al. 2000) which they found the positive relationship among charter value and bank risk. However, our result is different with (Mamiza Haq a 2014) that argue the bank charter value decreases bank risk including equity risk, credit risk, and default risk. (Fraser 2000) argue that the charter value has a negative relationship with total risk, systematic risk and idiosyncratic risk.

In addition, the PLS analysis shows that the relationship between the information system and bank risk is positive, which it contrasts to the orientation of H_3 . In general bank risk increases with developing Information systems, while our results are contradicting with general idea of safe securing of risk by promoting information

system. However, this result is the same as (Chen, Yen et al. 2015), that argue many bank risks ‘incidents result from inadequate protection of information assets. (Marshall 2010) Which argue that the negative impact of develop the information system on data integrity consequences of financial institutions will be an endless degradation of sensitive commercial and personal financial information due to internet hackers access to unsecure financial systems online if cyber-crimes using technology bombs. While (Abdolvand, Albadvi et al. 2015), said that the efficient information system can reveal which customers combination can pinpoint profitable and default.

With regard to fourth hypotheses, the result in figure 1 has shown the positive relationship among (internal/external) control system (CS) and bank risk, which it contrasts to the orientation of fourth hypothesis (H₄). Bank risk increases with increasing internal and external control. The analysis shows $R^2 = 0.33$, it means strong relation. As previous researches indicate that CEO overconfidence can explain the cross-sectional heterogeneity in risk-taking behavior among banks (Ho, Huang et al. 2016, Huang, Tan et al. 2016), our results demonstrate that the Bank’s CEO overconfidence lead to perceiving a secure condition due to their investment in internal-external control system, which in fact, it is a source of overinvestment and outflows of bank resources. That could increase the total bank risk.

With regard to fifth hypotheses, PLS analysis has shown that there is negative relationship among the market discipline and bank risk. We can observe the result in Fig.1, which it is, support the H₅. An increase in market discipline, a decrease in bank risk. This result have similarity with (Demirgüç-Kunt and Huizinga 2004), (Nier and Baumann 2006), (Goyal 2005), and (Cubillas, Fonseca et al. 2012) find that bank crises generally weaken market discipline as depositors anticipate stronger implicit guarantees in the future (Mamiza Haq a 2014). While, (Martinez Peria 2001) and.(Hadad, Agusman et al. 2011), founds that the demonstrate that depositors discipline banks by withdrawing deposits and by requiring higher interest rate after crises This result is different with several empirical studies such as Hasan, (Hasan, Jackowicz et al. 2013), which argue that the market discipline supporting the hypothesis that market discipline is at work. Our findings have been shown that the market discipline is one of the important factors on bank risk, which is support Basel III to introduce market discipline as a pillar of prudential banking regulation.

Table 4 Effect sizes for path coefficients

	Bank Capital	Charter V	Develop IS	Market D	InExCon
Bank risk	0.007	0.17**	0.112**	0.115**	0.112**
*Small effect, ** Medium effect, ***Large effect					

Table 5 The sum of direct and indirect effect of LV on Performance

	Bank Capital	Charter V	Develop IS	Market D	InExCon
Bank risk	0.007 ^b	0.17 ^a	0.012 ^a	0.115 ^a	0.112 ^a

a $p < 0.01$.

b $p < 0.1$.

6. Conclusion

This research investigates bank capital, cheater value, information system, internal & external control system and market discipline on bank risk. The results show that bank risk is positively related to control system, charter value, information systems, but negative related to market discipline. Also the result show that there is no relationship among bank capital and bank risk. This result is different with (Mamiza Haq a 2014) which argue that there is no evidence of a non-linearity between bank capital and bank risk. Although Basel I, II and III make attention to capital adequacy, the result showed that the charter value, & market discipline are the most important factors on bank risk.

We have the same result with (Mamiza Haq a 2014) that there is negative relationship among charter value and bank risk. Which means the value of a bank able to continue to do business in the future, reflected as a part of its share price. But we have different result with (Fraser 2000) and (Konishi and Yasuda 2004) argues that the charter value has a negative relationship with total risk, systematic risk and idiosyncratic risk. However, our result is different with (Hellmann, Murdock et al. 2000), they found positive relationship among charter value and bank risk.

With regard of information system, the results show there is positive relationship among develop the information system and bank risk. However, this result is the same as (Chen, Yen et al. 2015), that argue many bank risks ‘incidents result from inadequate protection of information assets. (Marshall 2010) Which argue that the negative impact of develop the information system on data integrity consequences of financial institutions will be an endless degradation of sensitive commercial and personal financial information due to internet hackers access to unsecure financial systems online if cyber-crimes using technology bombs. Moreover, the result show there is positive relationship among (internal/external) control system (CS) and bank risk. As previous researches indicate that CEO overconfidence can explain the cross-sectional heterogeneity in risk-taking behavior among banks, our

results demonstrate that the Bank's CEO overconfidence lead to perceiving a secure condition due to their investment in internal/external control system, which in fact, it is a source of overinvestment and outflows of bank resources. In addition, our result show there is negative relationship among the market discipline and bank risk. Our result the same with Mamiza Haq. et. al which argue that the market discipline is found to be negatively associated with bank risk. But it has deferent with Demirgüç-Kunt and Huizinga, Nier & Baumann and Cubillas et al find that bank crises generally weaken market discipline as depositors anticipate stronger implicit guarantees in the future.

In general, the charter value and market discipline are playing very significant rule on bank risk. Therefore, the result answers the research question through support Basel III and make attention to charter value and market discipline. Thus, this study significant to all that have anxiety of bank risk.

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