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Impact of Research Output in Finance on Financial Development: Empirical Investigation from Middle Eastern Economies

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ABSTRACT

The primary **purpose** of the study is to evaluate the impact of research output in finance, both in terms of quantity and quality, on the development of the financial sector. The study analyzed data from 2000 to 2017, including 15 countries in the Middle East, employing a two-step SYS-GMM method. The empirical findings reveal a significant correlation between the quantity of research output in finance and the overall activity and stability of the financial sector. However, when it comes to the quality of research output in finance, it only positively influences the activity while negatively and significantly affecting the stability of the financial sector. This noteworthy result suggests that highly regarded research in finance may recommend taking greater risks for national reforms, operating under the belief of "no pain, no gain". High-quality research in finance often offers valuable insights, minimizes risk and uncertainty, and helps inform policies and reform strategies for successful implementation. It is crucial for Middle Eastern policymakers to prioritize improving both the quantity and quality of finance research and provide support to researchers. This will enable them to achieve the desired economic growth and impact the development of the financial sector. Furthermore, policymakers can also consider recommendations from well-respected economists to mitigate instability in the financial sector while pursuing necessary, albeit risky, initiatives for successful reform. To date, no other research has investigated the influence of research output in the field of finance on financial development, both in terms of quantity and quality.

***Keywords*:** finance; research output; financial development; quantity and quality; MENA GMM

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INTRODUCTION

In 1911, Schumpeter emphasized the important role that financial intermediaries play in technological innovation and economic growth. He highlighted the significance of their services, which include gathering savings, evaluating projects, managing risk, overseeing managers, and facilitating transactions [1]. McKinnon (1973) and Shaw (1973) further expanded on this theory, drawing inspiration from the remarkable accomplishments of South-East Asian countries [2, 3]. Since the 1990s, numerous economists have conducted empirical studies to examine the connection between financial development and economic growth. Studies by King and Levine [1] and Levine et al. [4] have revealed a significant positive influence of financial development on economic growth. This finding has been further supported by subsequent studies in developing countries [5–10].

Understanding the factors that determine financial development in developing countries has become an increasingly important area of research due to the crucial role that finance plays in promoting development. Empirical studies consistently show that the regulation and supervision of the financial sector have a strong influence on financial development. Specific regulations like capital requirements, activity restrictions, and barriers to foreign bank entry play a significant role in shaping different aspects of financial development [11–18]. Legal systems and institutions are crucial for financial development as they ensure the protection of property rights and enable the effective enforcement of contracts, both of which are essential for the growth and stability of financial markets. Empirical evidence strongly supports the idea that more effective legal systems lead to lower differences in interest rates and greater efficiency in financial institutions [19–25]. A stable economic

environment is crucial for the effective functioning of a financial sector. Countries with high inflation rates face challenges in the development of their banking and stock markets [26–28].

The variation in the level of financial development worldwide is mainly influenced by factors such as a country's legal system, institutions, regulations, and political and macroeconomic conditions. However, due to the uneven nature of financial development, it is essential to explore additional factors and obstacles that have not been previously examined. Other factors can also account for the differences in the level of financial development between countries. Scientific research has a significant impact on overall economic development, as indicated by findings from related fields. The quantity and quality of scientific research output, which is often linked to economic development, can also have an effect on financial development, separate from its impact on economic development. The connection between scientific research and economic development can be facilitated through financial development. Additionally, there is evidence to suggest that scientific research and research and development (R&D) in a specific field have a positive influence on the efficiency and productivity of the relevant sector [29–32]. Therefore, it is vital to determine whether the quantity and quality of research output in finance are crucial prerequisites for financial development, as this has profound implications for both intellectual discourse and policymaking.

This study aims to assess the influence of both the quantity and quality of research output in finance on various aspects of financial development (specifically activity and stability) in the Middle East from 2000 to 2017. To achieve this, the study utilizes a two-step generalized method of moments (two-step GMM) estimation method. To date, no other research has investigated the influence of research output in the field of finance on financial development, both in terms of quantity and quality. Additionally, this study specifically concentrates on the Middle East, comprising a set of developing countries. This aspect is crucial as it can offer decision-makers in these nations valuable information on how to allocate their limited resources to achieve enhanced levels of financial development and economic growth.

LITERATURE REVIEW

Engaging in research activities and increasing the output of research has a positive impact on the quality of human capital. This, in turn, leads to improved productivity and economic growth. Numerous studies have delved into the relationship between economic growth and research output, utilizing scientometric indicators to measure the correlation. In an influential study conducted by De Moya-Anegon and Herrero-Solana [33], which revealed a significant correlation between the number of journal papers and GDP in 19 Latin American nations. Similarly, King's [34] study identified a linear relationship between the number of published papers and economic performance in OECD countries.

Recent studies have explored the correlation between research output and economic growth. Lee et al. [35] found mutual causality in developing Asian countries. Inglesi-Lotz et al. [36, 37] found no causality in Brazil, China, Russia, and South Africa. However, a one-way causality was found from research output to economic growth in the US and a positive relationship in India. In 34 OECD countries, Ntuli et al. [38] studied 34 OECD countries and provided evidence of one-way causality in four countries, including the US. Evaluating the impact of research output on economic growth across 169 countries, Solarin and Yen [39] presented crucial evidence of a significant and positive impact, regardless of the countries' development levels.

Various studies have also focused on specific fields of research and their relationship with economic growth. Jaffe et al. [40] found that nations focusing on basic sciences experience faster economic growth compared to those emphasizing applied knowledge. Inglesi-Lotz and Pouris [41] observed a positive connection between research output in specific fields (biology and biochemistry, chemistry, material sciences, physics, psychiatry, and psychology) and South Africa's economic growth. Jin and Jin [42] discovered that research output in fundamental science, engineering, economics, and business contributes significantly to economic growth. Yasgül and Güris [43] provided evidence that research output in biotechnology positively impacts economic growth in Turkey. Laverde-Rojas and Correa [44] found a

positive impact of basic sciences and engineering research output on economic growth, but only in high-income countries. Pinto and Teixeira [45] conducted a comprehensive study and confirmed the significant global influence of research output on economic growth, with particular emphasis on the fields of social sciences, physics, engineering, and technology. Azmeh [46] demonstrated the substantial impact of research output quality on economic growth, highlighting the importance of research areas such as Biochemistry, Genetics and Molecular Biology, Engineering, Mathematics, Physics and Astronomy, and Psychology in economic development. Pourghaz et al. [47] using a multivariate random effects model showed that an increase in research output leads to an increase in economic growth.

Two seminal studies conducted by Jin (2009, 2010) investigated the influence of research output in the economic field on economic growth across five East Asian economies [48, 49]. By analyzing a comprehensive dataset of articles published in esteemed economics journals, Jin discerned that the causal relationship between research output and economic growth varies among countries. Notably, Hong Kong exhibits a reciprocal causality between research output and economic growth, while Japan exhibits a unidirectional causality from economic growth to research publications. Conversely, in Korea and Taiwan, the causal path flows from publications to growth. Lastly, in Singapore, the causal effects appear to be minimal and statistically insignificant.

MATERIALS AND METHODS

Data

This study examines how the quantity and quality of research output in finance impacted financial development in 15 Middle Eastern countries between 2000 and 2017. The researchers used a two-step system generalized method of moments (two-step system GMM) estimation method to estimate the relationship. The dataset includes variables for research output in finance, financial development, and other factors that influence financial development. The researchers measured research output by looking at the number of publications and citations in finance from the Scopus database via the SCImago website. Institutional quality was assessed using the Worldwide Governance Indicators (WGI), which consists of six indicators across three governance areas. For the analysis on financial development, the researchers specifically focused on one indicator from each governance area: voice and accountability, government effectiveness, and rule of law. The indicators of voice and accountability, government effectiveness, and the rule of law are crucial in relation to financial development. They encompass transparency, efficiency of public services, and enforcement of legal frameworks that are essential for creating an enabling environment for the growth of the financial sector and overall economic prosperity. These indicators play a significant role in ensuring that financial institutions operate in a transparent, accountable, and stable environment that supports economic growth [50, 51]. Financial development measures (including private credit[1] and z-score[2]) and macroeconomic variables (such as inflation,[3] GDP per capita,[4] and bank concentration[5]) were sourced from the World Bank database. *Table 1* provides more information on the statistical details. Additionally, a correlation matrix was created to examine the relationships between variables and identify multicollinearity. The findings from the correlation matrix can be found in *Table 2*.

Upon reviewing the data in *Table 2*, it was observed that there was a notable problem of multicollinearity in the current analysis, with a strong correlation among multiple variables exceeding 70% (CitFin-DocFin, R-O-Law-Gov-Eff, and Gov-Eff-GDP). To assess this multicollinearity further, a Variance Inflation Factor (VIF) test was carried out. The findings revealed a mean VIF value of 3.49 as well

[1] The financial resources provided to the private sector by domestic money banks as a share of GDP.

[2] It captures the probability of default of a country›s commercial banking system. Z-score compares the buffer of a country›s commercial banking system (capitalization and returns) with the volatility of those returns.

[3] Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole.

[4] GDP per capita is gross domestic product divided by midyear population. Data are in constant 2015 U.S. dollars.

[5] Assets of three largest commercial banks as a share of total commercial banking assets.

Table 1

Summary Statistics of Key Variables for the Period (2000–2017)

Variable Abbreviation	Variable	Mean	Std. Dev.	Min	Max
DocFin	No. Documents in Finance	17.3614	26.7206	1.00000	155.000
CitFin	No. Citation in Finance	263.525	345.855	0.000000	1523.00
Gov_Eff	Government Effectiveness	−0.198101	0.721112	−1.97728	1.50927
R_O_Law	Rule of Law	−0.193049	0.728710	−2.09213	0.958436
V_Acc	Voice & Accountability	−1.00144	0.469783	−2.05034	0.0132019
Priv	Private credit	44.1672	24.9229	1.26603	105.187
Inf	Inflation	6.81457	9.11717	−10.0675	54.9154
Z_score	Z-score	19.6361	12.1562	0.0244457	66.2700
Bank_Con	Bank Concentration	72.7206	18.2050	38.2884	100.000
GDP_per_capita	GDP per Capita	16190.1	18264.7	806.075	73493.3

Source: Compiled by the authors.

Table 2

Correlation Coefficients for the Period (2000–2017)

DocFin	CitFin	Gov_Eff	R_O_Law	V_Acc	Priv	Inf	Z_score	Bank_Con	GDP	
1.0000	0.8492	0.2944	0.1059	0.2127	0.1592	0.0728	−0.0539	−0.4063	−0.0111	DocFin
	1.0000	0.3035	0.1202	0.3004	0.0741	0.1336	−0.1209	−0.4636	−0.0044	CitFin
		1.0000	0.8953	0.3854	0.5524	−0.3319	0.2334	−0.1339	0.7191	Gov_Eff
			1.0000	0.3863	0.4873	−0.3952	0.2607	−0.0067	0.6731	R_O_Law
				1.0000	0.3047	−0.1223	0.1966	−0.0869	0.1685	V_Acc
					1.0000	−0.2900	0.3045	−0.2371	0.2360	Priv
						1.0000	−0.1607	0.0931	−0.2600	Inf
							1.0000	0.1797	0.1088	Z_score
								1.0000	0.0531	Bank_Cont
									1.0000	GDP

Source: Compiled by the authors.

as all other control variables, with values falling below the threshold of 10. This outcome explicitly confirmed no presence of multicollinearity in our dataset [52]. Detailed results can be found in *Table 3*.

Model estimation

In this research, the two-step SYS-GMM technique of panel estimation was employed to tackle a range of challenges that often emerge in different models (OLS, FE, and RE models), including issues with unequal variances, correlation of errors, causal relationships, unseen country-specific impacts, and problems of omitting variables. The instruments used were lagged control variables. We used the two-step system GMM (SYS-GMM) method to estimate the following equation:

$$Y_{it} = \alpha + \beta F_{it} + \gamma X_{it} + \mu_{it}, \quad (1)$$

where Y — is the variable that represents financial development; F — is the variable that represents the research output in finance; X — is the matrix of all control variables and μ is the error term; α — is the constant; β — coefficient of research output;

Table 3

Variance Inflation Factor (VIF) Test for the Period (2000–2017)

Variable	VIF values
DocFin	3.927
CitFin	4.843
Gov_Eff	7.355
R_O_Law	5.401
V_Acc	1.230
Inf	1.189
Bank_Con	1.803
GDP_per_capita	2.176
Mean VIF	3.4905

Source: Compiled by the authors.

γ — is the vector of coefficients on the control variables; *i* — refer to the country studied while (*t*) to time period.

To incorporate dynamics into our model, equation (1) can be expressed in the form of an autoregressive model.

$$Y_{it} - Y_{it-1} = \alpha_t + \text{V}\, Y_{it-1} + \beta\, F_{it} + \gamma\, X_{it} + \mu_i + \varepsilon_{it}, \quad (2)$$

where α_t — time-specific constant terms; μ_i — unobservable effects specific to each country and constant over time; and ε_{it} — residual term. Equivalently, Equation (2) can be written as:

$$Y_{it} = \alpha_t + (\text{V}+1)\, Y_{it-1} + \beta\, F_{it} + \gamma\, X_{it} + \mu_i + \varepsilon_{it}. \quad (3)$$

Equation (3) can be expressed in first differences to remove the country-specific and time-invariant component (μ*i*).

$$\Delta Y_{it} = (\text{V}+1)\, \Delta Y_{it-1} + \beta\, \Delta F_{it} + \gamma\, \Delta X_{it} + \Delta\alpha_t + \Delta\varepsilon_{it}. \quad (4)$$

The research utilizes a two-part system GMM estimation method. Two tests are performed after the estimation to verify the accuracy of the model, namely the Sargan and Hansen J-tests for restrictions that exceed the needed amount, and the Arellano-Bond test for no self-correlation in the errors that have been adjusted twice. The final equation is employed on the complete sample to analyze the effect of research output in finance, in terms of both quantity and quality, on two primary indicators of financial development. These indicators reflect the performance and reliability of the financial sector, specifically private credit and Z-score. Our results are reported in *Table 4* and *5*.

RESULTS AND DISCUSSION

Impact of Research Output In Finance on the Activity of the Financial Sector (Priv)

The examination of our model estimations commences by scrutinizing the findings presented in *Table 4*, utilizing annual data for our analysis. Our focused attention lies on the dependent variable of private credit (Priv), which pertains to the financial resources furnished to the private sector by domestic money banks as a percentage of the GDP. A higher value of (Priv) signifies enhanced activity and efficacy of the banking system. Our independent variables consist of the quantity and quality of research output in finance, institutional development, inflation, bank concentration, and log of GDP per capita. The results are documented in *Table 4* spanning Columns (1 to 8). The findings indicate that the quantity of research output in finance, measured by the number of publications, exerts a positive and statistically significant influence (at the 1% level of significance) on Priv in the initial model (OLS). The results for the two-step system GMM, presented in (columns 5–8), also demonstrate positivity, but they do not reach statistical significance. Significantly, the findings unveil a positive and statistically significant impact (at the 5% level of significance) of the quality of research output in finance on private sector credit (Priv). The influence of research quantity in finance on Priv is positive for the GMM model, but it lacks statistical significance.

Impact of research output in finance on the stability of the financial sector (Z-score)

The Z-score indicator is a powerful tool that accurately evaluates the probability of default within a nation's commercial banking systems. It gauges the robustness of a country's commercial

Table 4

Research in Finance and Financial Sector Development (Activity) in the Middle Eastern Countries for the Period (2000–2017): Ordinary Least Square, and Two-Step (SYS- GMM)

Indicator	Dependent variable Private Credit (Priv)							
	OLS				2step SYS–GMM			
	1	2	3	4	5	6	7	8
L1. priv					0.813*** 0.164	0.521*** 0.192	.518** .238	0.230 0.272
LogDoc	**13.17*** 5.054**	**12.61** 5.081**	**11.55** 5.272**	**11.43** 5.297**	**1.141 1.976**	**3.819 5.702**	**1.272 3.091**	**3.528 2.616**
LogCit	**–5.03 4.214**	**–2.37 4.188**	**0.812 4.47**	**0.733 4.497**	**–0.269 1.584**	**–0.246 3.051**	**6.962** 2.815**	**5.792** 2.948**
GovEff	9.791* 5.88	10.47* 5.91	3.656 6.055	4.658 6.635	4.269 3.332	7.221*** 2.281	2.405 1.859	–0.409 1.700
ROLaw	3.169 5.219	1.900 5.184	7.976 5.50	8.145 5.537	–0.792 2.744	–0.588 3.048	1.573 3.560	5.467* 2.977
VAcc	8.658** 3.472	6.227* 3.447	12.52*** 3.676	12.28*** 3.743	2.337 2.957	3.971 2.543	4.671 2.995	11.10** 4.595
Inf		–0.63*** 0.198	–1.09*** 0.227	–1.10*** 0.230		–0.291* 0.157	–0.669** 0.3295	–0.919** 0.359
Bank–Con			0.096 0.111	0.09 0.112			0.2412** 0.117	0.144 0.093
log_GDP				–0.91 2.453				2.755*** 0.928
constant	57.46*** 6.879	53.57*** 6.769	48.71*** 13.21	57.45** 26.83	12.427 9.065	27.078** 12.207	0	0
Prob > F	0.00	0.00	0.00	0.00				
Adj–R 2	0.22	0.30	0.36	0.36				
Prob > chi2					0.000	0.000	0.000	0.000
AR(1)					0.099	0.063	0.001	0.064
AR(2)					0.636	0.749	0.633	0.536
Hansen test Prob > chi2					1.000	1.000	1.000	1.000

Source: Compiled by the authors.

Notes: Standard errors are presented below the coefficient values. *Significant at 10%, **significant at 5%, and ***significant at 1%.

Table 5

Research in Finance and Financial Sector Development (Stability) in the Middle Eastern Countries for the Period (2000–2017): Ordinary Least Square, and Two-Step (SYS-GMM)

Indicator	Dependent variable Z–score							
	OLS				2step SYS–GMM			
	1	2	3	4	5	6	7	8
L1. priv					0.914*** 0.079	0.868*** 0.099	0.041 22.690	0.174 4.580
LogDoc	**6.528** **3.024**	**8.447** **3.442**	**10.665*** 3.289**	**9.354*** 2.895**	**1.374** **0.542**	**2.707* 1.478**	**2.558*** 0.886**	**2.967 2.566**
LogCit	**–4.666* 2.495**	**–5.603** 2.797**	**–2.423 2.739**	**–2.655 2.406**	**–1.046** 0.521**	**–1.934** 0.971**	**–1.260** 0.530**	**–0.363 0.867**
GovEff	–4.432 3.540	–7.335* 4.073	–6.832* 3.847	2.774 3.674	–1.220** 0.574	–0.941 0.811	–0.756 0.895	–1.170 1.557
ROLaw	7.211** 3.290	8.003** 3.639	4.098 3.550	5.589* 3.126	1.249** 0.595	0.975 0.832	0.132 0.816	0.660 1.180
VAcc	1.7190 2.110	1.905 2.370	0.4224 2.263	–1.433 2.007	0.923** 0.440	0.782 0.598	0.459 0.581	–0.243 0.896
Inf		–0.244* 0.139	–0.358*** 0.134	–0.51*** 0.120		–0.033 0.052	–0.013 0.023	–0.056 0.089
Bank–Con			0.3173*** 0.072	0.340*** 0.064			0.035*** 0.009	0.113 0.072
log_GDP				–8.91*** 1.339				–0.600 0.401
constant	25.94*** 4.235	27.58*** 4.648	–4.120 8.501	78.54*** 14.493	3.645** 1.759	6.464* 3.314	0	0
Prob > F	0.03	0.05	0.0	0.00				
Adj–R 2	0.03	0.04	0.14	0.34				
Prob > chi2					0.000	0.000	0.000	0.000
AR(1)					0.047	0.081	0.030	0.049
AR(2)					0.496	0.181	0.357	0.863
Hansen test Prob > chi2					1.000	1.000	1.000	1.000

Source: Compiled by the authors.

Notes: Standard errors are presented below the coefficient values. *Significant at 10%, **significant at 5%, and ***significant at 1%.

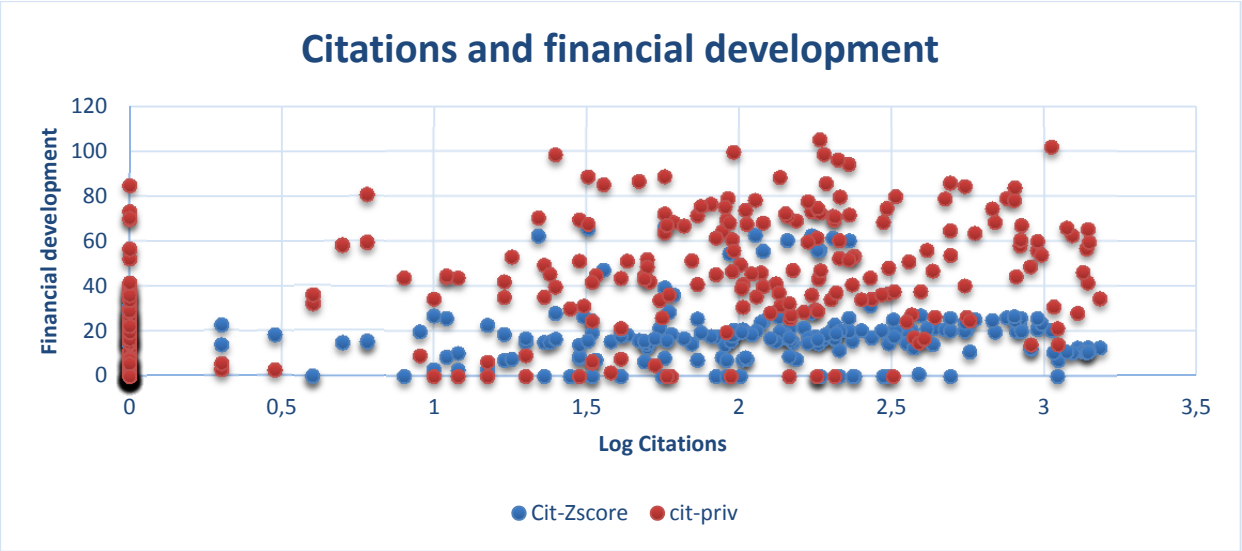

Fig. **The Level of Citations and Financial Development in the Middle East (2000–2017)**

Source: Compiled by the authors based on World Bank Database and Scimago.

banking system by comparing the capitalization and returns against the volatility of those returns. A higher Z-score signifies a banking system that is exceptionally resilient and impervious to instability. This research aims to thoroughly analyze the influence of both the quantity and quality of research output in the field of finance on the Z-score, a widely accepted measure for assessing financial stability. The significant findings of this study are showcased in *Table 5*, specifically in Columns 1 to 8. The results unequivocally demonstrate a substantially positive impact of the quantity of research in finance on the Z-score, as proven by rigorous statistical analysis at an extraordinarily high level of significance (1%), across the majority of specifications, employing both Ordinary Least Squares (OLS) and two-step (SYS-GMM) models. Moreover, the study's results conclusively reveal a detrimental and statistically noteworthy effect of the quality of research output in finance on the Z-score for practically all specifications.

The present study emphasizes the significant and substantial positive impact of financial research on the development of the financial sector. These insights have important implications for policymakers and stakeholders who aim to enhance the overall performance of the financial industry. Therefore, it is crucial to conduct further research in the field of finance, both in terms of quantity and particularly quality, in order to effectively achieve financial development, as it serves as a critical catalyst for driving economic prosperity and growth. Our findings provide evidence of the notable influence of the quantity of research output in finance on the activity and stability of the financial industry. In contrast, the quality of research in finance, as measured by the number of citations, positively affects activity but negatively and significantly impacts the stability of the financial sector. *Figure* and *Table 2* give more evidence of the negative correlation between the level of citations and Z-score. In *Figure* all points that have values of Citations bigger than 2.5 have a low level of Z-score (less than 30). Moreover, the value of the correlation between these two variables is –0.1209 in *Table 2*. This final and highly significant result can be seen as the highest level of research quality published by economists in the Middle Eastern countries, representing a positive contribution of researchers to the reform process. Furthermore, this suggests that high-quality research in finance may advocate for taking more risks in pursuing national reform, with the mindset of "no pain, no gain". In other words, high-quality research in finance often offers valuable insights, reduces risk and uncertainty, and helps inform policies and reforms that involve risky initiatives, leading to successful implementation of reforms.

CONCLUSIONS

The importance of finance in driving economic development necessitates a thorough investigation into the factors that influence financial development, especially in developing nations. Understanding these determinants is of utmost importance. However, despite concerted efforts, there is a significant disparity in the level of financial development among countries. Scholars primarily attribute this variation to the legal system, institutions, regulations, and the prevailing political and macroeconomic conditions within each country. Therefore, the primary objective of this study was to examine the impact of the quantity and quality of research output in finance on financial development, including its activity and stability, in Middle Eastern countries. To achieve this objective, the study employed two estimation methods: ordinary least squares (OLS) and a dynamic panel two-step system (GMM). The study utilized a comprehensive database spanning from 2000 to 2017, which included data from 15 Middle Eastern countries. The quantity of academic research output in finance was measured using the number of publications in finance by country each year, while the quality of research was measured by the number of citations in finance. The study obtained data from the Scopus database, published on the SCImago website. The study also utilized the Worldwide Governance Indicators (WGI) to assess institutional quality and the World Bank database for compiling measurements of financial development and macroeconomic variables. The empirical results of the study demonstrate a significant influence of research output in the field of finance on the development of the financial sector, including its activity and stability. These findings align with prior research conducted by Jin in 2009 and 2010. Therefore, the study provides compelling evidence supporting the critical significance of increased research endeavors in finance for enhancing the efficacy and stability of the financial industry, which is a key driver of economic growth. Interestingly, the study also reveals that research quality in finance, as measured by citation counts, has a positive effect on the level of activity in the financial sector but simultaneously exerts a negative influence on financial sector stability. This finding suggests that economists in Middle Eastern countries produce exceptional research, contributing favorably to ongoing reform efforts. Furthermore, it implies that high-quality research in finance may advocate for embracing higher levels of risk as a necessary step towards successful national reform. This insight reduces risk and uncertainty, informs policy, and enables the implementation of reform initiatives. Based on these findings, policymakers in Middle Eastern countries should prioritize improving the quantity and quality of research output in finance and support researchers to realize the expected impact of research on economic growth and financial development. Additionally, policymakers may consider reviewing recommendations from high-quality research to reduce instability in the financial sector while proceeding with necessary but potentially risky initiatives for successful reform implementation. In conclusion, this study confirms that the quantity of research output in finance has a positive impact on the activity of the financial sector. However, the statistical significance of this impact varies depending on the model used. On the other hand, the quality of research output in finance has a positive and statistically significant impact on the financial sector's activity. More detailed research should be done in the future, to explain the negative association between the quality of research in finance and the level of financial stability. We advise researchers to conduct a bibliometric study on the impact of top cited articles in the financial field on the financial development process at a country level.

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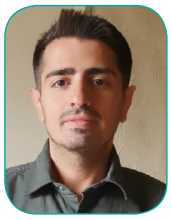

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