



WHAT EXPLAINS THE SIZE OF SOVEREIGN WEALTH FUNDS? A PANEL ANALYSIS (2008-2018)

Anna Balestra

Centre of Applied Economics (CSEA) - Università Cattolica del Sacro Cuore, Milano

Raul Caruso

Department of Economic Policy - Università Cattolica del Sacro Cuore, Milano
CESPIC, Catholic University 'Our Lady of Good Counsel'
e-mail: raul.caruso@unicatt.it

Marco Di Domizio

Department of Political Science, University of Teramo

CESPIC WORKING PAPER
2023/02

What explains the size of Sovereign Wealth Funds? A panel analysis (2008-2018)

Anna Balestra

Centre of Applied Economics (CSEA) - Università Cattolica del Sacro Cuore, Milano

Raul Caruso

Department of Economic Policy - Università Cattolica del Sacro Cuore, Milano

CESPIC, Catholic University 'Our Lady of Good Counsel'

e-mail: raul.caruso@unicatt.it

Marco Di Domizio

Department of Political Science, University of Teramo

Abstract

This paper empirically investigates the economic correlates of the size of Sovereign Wealth Funds (SWFs). We exploit a panel of 28 SWFs for the period 2008-2018. One general finding we assert from this study is that the impact of financial market dynamics on the size of SWFs, while of comparable magnitude to the influence of the domestic economy, exhibits a greater degree of stability. Among other factors, of particular interest is the inverse correlation estimated between the size of SWFs and the existence of armed conflicts. The quantitative reduction in the size of SWFs in the presence of an armed conflict has been estimated to range between 25% and 37%.

Keywords: Sovereign Wealth Funds; Assets Under Management; MSCI World Index; Conflicts; Globalization.

Jel Codes: F01; G15; G28.

1. Introduction

This paper empirically investigates the economic correlates of the size of Sovereign Wealth Funds (hereafter SWFs). They are investment funds established and managed by governments. Most studies in the literature has focused mainly upon a categorization and classification of SWFs [see among others Eldredge, 2019, Cumming, 2017; Bortolotti et al., 2015; Al-Hassan et al., 2013; Petrova et al., 2011; Quadrio Curzio and Miceli, (2010)]. Other works have emphasized the political goals pursued by SWFs [Clarke, 2016, Lenihan (2014), Balding (2012), Avendaño and Santiso (2011), Gilson and Milhaupt (2009), Wu and Seah (2008)]. Comprehensive surveys of the literature are Alhashel (2015) and Bahoo et al., (2020).

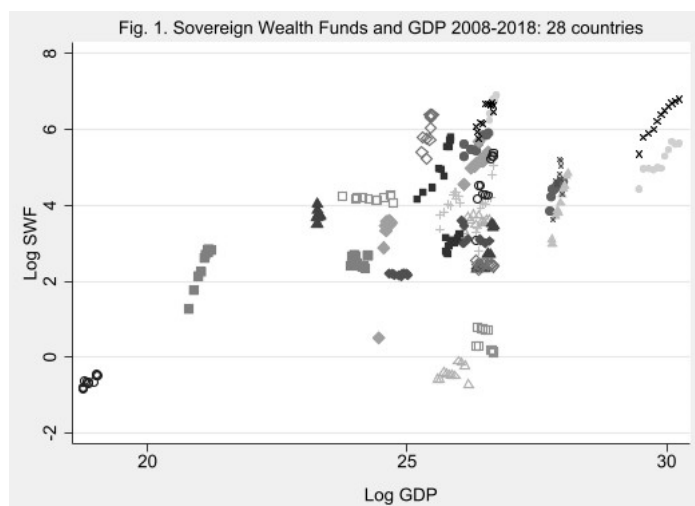
Differently from the prevailing literature, we focus on the determinants of their size. In this respect our work is mainly related to Aizenman and Glick (2009). There, the authors highlight that the establishment of SWFs can be related to macroeconomic factors – for instance, a surplus in the current account balance – and also to socio-political factors. In what follows, we exploit a panel of 28 SWFs from 22 countries for the period 2008-2018, to highlight some factors associated with the size of these funds. Our analysis considers two sets of factors to explain the dependent variable: country-specific determinants, comprising economic performance, socio-economic stability proxies, and the country's inclination towards international integration; and global determinants. In particular, we first seek to distinguish whether the SWFs size is predominantly explained by the GDP, which would represent the long-term capability of the government to increase the size of a SWF, or if it depends mainly upon the dynamics of global financial markets captured through the MSCI World Index. Furthermore, we investigate the role of some socio-political factors like armed conflicts and global integration in explaining the size of SWFs. Notably, we investigate whether the existence of an armed conflict has an impact on the size. With respect to the latter, albeit presumably negative, the relationship cannot be predicted with absolute certainty. On one hand, the existence of an armed conflict may deplete resources, leading to a negative association with the size of the SWFs. On the other hand, the government may endeavour to increase the assets of the fund, akin to an insurance mechanism, as a precautionary measure to mitigate potential adverse impacts of the conflict on the economy.

The paper is structured as follows: in a first section we describe the data used; in a second section we explain the empirical model employed and in a third section results are presented and discussed. The conclusions summarise the results and propose a connection between them and the present economic landscape.

2. The data, the empirical strategy and the results

2.1 The data

The estimation strategy aims to highlight relationships between the size of SWFs - measured as Assets Under Management (hereafter AUM) - and a parsimonious set of variables. Our analysis considers two sets of factors to explain the dependent variable: country-specific determinants, comprising economic performance, socio-economic stability proxies, and the country's inclination towards international integration; and global determinants. As main variable, first, we examine the association between GDP and the size of SWFs. As SWFs are funded by public resources, it is plausible that wealthier countries may have larger SWFs. Figure 1 presents a scatter plot between the two variables (in logarithmic scale), revealing distinct patterns in their relationship. Different icons denote different funds. In general, a predominant positive association between the GDP and SWFs is observed.



In order to consider the capacity of the government to increase the AUM we also employ as controls two macroeconomic variables. Drawing insights from Aizenman and Glick

(2009) we control the relationship between AUM and the percentage ratio of current account balance on GDP. A surplus of the current account would reflect a better capacity to fund domestic economic activity and therefore also that of increasing the size of SWFs. We also consider the level of unemployment since it can be intended to constitute a constraint on governments as they may need to allocate resources towards sustaining current social welfare programs. Subsequently, to assess the relationship between SWF size and financial market dynamics, we utilize the MSCI World Index, which currently serves as the benchmark index for global stock markets. [see for instance Kakran et al. (2023), Omura et al. (2021), Bae et al. (2019); Goel et al. (2017), de Jong and de Roon (2005)]. Then we also added two variables which capture the international integration and the socio-political scenario of the country, namely:

(i) the KOF Globalization index which captures the degree of openness and integration of a country with respect to the rest of the world. The KOF is a composite index that measures globalisation along the economic, social and political dimension for almost every country in the world on a scale of 1 (least) to 100 (most globalised). The original index was introduced by Dreher (2006) and updated by Dreher et al. (2008). We expect a positive association with the size of SWFs. This would present an alternative perspective to the one delineated by Aggarwal and Goodell (2018), which underscored the significant influence of national culture on the management of SWFs;

(ii) the existence of an armed conflict in the country. We employ a dummy variable that takes a value of 1 if the country is involved in an armed conflict and 0 otherwise. The source is the UCDP/Prio Armed Conflict dataset. The relationship between armed conflicts and the size of SWFs lacks definitive expectations. On one hand, during the occurrence of an armed conflict, governments may seek to stabilize the economy and safeguard savings for the future, potentially leading to a positive empirical association between armed conflicts and SWFs' size. On the other hand, a plausible diversion effect might prevail over the aforementioned stabilization effect. In fact, when governments allocate resources to tackle the conflict, it is improbable that they will also augment the allocation of resources to other areas or sectors [in this respect see among others Pempetzoglou (2021), van den Boogaard et al. (2018), Fitzgerald (1997)]. Unsurprisingly, Wang et al. (2021) emphasize that SWFs exhibit greater sensitivity to conflicts compared to private firms. In general, it is acknowledged that the presence of armed conflicts leads to increased volatility and negative returns in stock markets [see

among others Tajaddini and Gholipour (2023); Kakran et al. (2023); Boubaker et al. (2022); Bounou and Yatiè (2022); Aslam et al. (2021), Schneider and Troeger (2006)].

Table 1 below reports the descriptive statistics.

Table 1 - Descriptive statistics

Variable	Definition	Sources	Obs.	Mean	St.Dev.	Min	Max
SWF (log)	Log of Asset Under Management in USD billions	Report SWF – SIL Bocconi University ¹	308	3.731	1.888	-0.85	6.91
GDP (log)	Log of GDP in constant 2015 USD billions	WDI, World Bank	308	25.866	2.208	18.76	30.23
MSCI WI (log)	Log of MSCI World Index 2008 = 100	MSCI	11	5.211	0.333	4.61	5.67
Globalization Index	0 - Low; 100 – High	KOF	308	69.242	11.149	37.06	85.95
Conflict	Dummy =1 if there is an armed conflict	UCDP/Prio Armed Conflict dataset	308	0.084	0.278	0	1
Current account balance (log)	Log of Current account balance / (% of GDP)	WDI, World Bank	180	23.292	2.214	12.06	26.64
Unemployment	Log of unemployment rate	WDI, World Bank	296	1.200	0.800	-2.21	2.98

2.2 The regression model

We exploit a panel dataset comprising 28 SWFs over the period 2008-2018. We employ a static panel approach described by:

$$AUM_{kit} = \alpha_{it} + \beta_1 GDP_{it} + \beta_2 MSCI_t + \beta_3 Z_{it} + \beta_4 X_{it} + \varepsilon_{it}, \quad (1)$$

Where AUM_{kit} denotes the log of size of SWF k of country i at time t , GDP_{it} denotes the log of GDP in constant 2015 US dollars, Z_{it} is the vector including the existence of conflict and the globalization index, X_{it} is the vector which includes the log of the

¹ SWF SIL Reports can be found at <https://baffi.unibocconi.eu/research-units/sil/reports>. (accessed 06/11/2023)

percentage ratio between the current account balance and the GDP and the log of unemployment rate and ε_{it} is the error term. The intercept is:

$$\alpha_{it} = \alpha + \mu_i + \tau_t, \tag{2}$$

whereas μ_i and τ_t are the error terms associated with the cross-section and time, respectively. This approach is based on the hypothesis that the intercept may vary across both cross-sectional units and time periods. First, we test for the existence of cross-section and time effects to evaluate the correct specification of the regression. The Lagrange multiplier tests for random effects support our hypothesis of both individual and time effects (Breusch and Pagan, 1980).

Table 2. Lagrange Multiplier Tests for Random Effects. Null hypotheses: No effects. Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives. p-values in parentheses.

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1388.22 (0.000)	5.21 (0.023)	1393.43 (0.000)
Honda	37.26 (0.000)	-2.28 (0.989)	24.73 (0.000)
King-Wu	37.26 (0.000)	-2.28 (0.989)	17.42 (0.000)
Standardized Honda	39.91 (0.000)	-2.04 (0.980)	23.01 (0.000)
Standardized King-Wu	39.91 (0.000)	-2.04 (0.980)	15.41 (0.000)
Gourieroux, et al.	--	--	1388.22 (0.000)

2.3 The results

In table 3 we present the results. First we included the GDP only and we progressively added the other variables. Then, to avoid perfect collinearity we estimated the regression without time fixed effects in multivariate models. We present both fixed and random effects estimations. The outcomes of the Hausman test suggest that RE estimation is suitable for models lacking macroeconomic controls, whereas FE models

should be employed once these controls are incorporated (models 4 and 8). Regrettably, the latter models suffer from a reduced number of observations due to limited data availability.

First, the GDP is positively associated with the size of SWFs. Since we consider the log transformations, the associated coefficients can be interpreted as elasticities. The elasticity with respect of GDP is around 0.5% in models 1 and 2 with RE, and 0.6% in models 5 and 6 with FE. In augmented models 3 and 4, this elasticity decreases, ranging between 0.2% and 0,3% in RE estimation only whereas in models 7 and 8 GDP loses its statistical significance. In sum, the most reliable estimation we would claim is that an increase of 1% of GDP is associated with an increase in size of SWFs which ranges between 0.25% and 0.3%. However, such impact is not confirmed in the FE models including control variables. Furthermore, as expected, the dynamics of stock markets influence the size of SWFs. The MSCI world index is positively associated with the size of SWFs. In particular, an increase of 1% of MSCI is associated with a 0.5% increase of size of SWFs. The estimated quantitative impact seems to be consistently confirmed across the various estimations, specifically falling within the range of 0.47% to 0.56%.

Socio-political factors also appear to be significantly associated with the size of SWFs. The KOF globalization index is positively associated with the size of SWFs. In particular, an increase of 1 unit in the globalization index results in a size increase of SWF of about 0.04%. Of notable magnitude are the negative coefficients associated with the existence of an armed conflict in both RE and FE estimations. Employing the estimator proposed by Kennedy (1981) for dummy variables in log-linear models we find that the existence of an armed conflict reduces AUM by 24.8% and 32.7%, in models 3 and 4, and by 27.7% and 37.4% in models 7 and 8 respectively. In brief, armed conflicts have a substantial negative impact on the AUM of the SWFs. Yet, it must be noted that with the inclusion of these variables the magnitudes of the coefficients associated with GDP and the financial market performance decrease. As mentioned above, due to the data scarcity, we have included as controls the current account balance and level of unemployment in models 4 and 8 only, but the coefficients are not statistically significant. The latter results seem to suggest that macroeconomics are less influential in explaining the size of SWFs with respect to socio-political factors.

In summary, our estimations yield nuanced evidence. On one hand, it is reaffirmed that GDP reflects a government's long-term capacity to augment the size of a SWF. Concurrently, the performance of global financial markets, alongside GDP, exerts a more stable and predictable influence on the size of SWFs. However, significantly - in model 8 - GDP has also lost its statistical significance, further emphasizing the role of global financial dynamics and socio-political factors as the primary drivers explaining the size of SWFs. Within this expanded model, it appears that the other macroeconomic variables under consideration do not exhibit any notable impact. Consequently, political factors emerge as the predominant influencers. In particular, in the light of the relevant negative impact of the conflict variable, presumably there is a substantial diversionary effect, wherein public resources are directed towards conflict-related expenditures and other items of public spending, rather than being channeled into state-owned funds. Furthermore, the perceived instability arising from conflicts may diminish the allure of nations' funds, consequently resulting in a decline in inbound investments. Remarkably, our findings diverge from those of Aizenman and Glick (2009). While their study did not reveal any statistically significant relationship with a measure of political stability, it did indicate a strong explanatory link with the current account balance.

Table 3. Panel estimation; dependent variable: Size of the SWFs (log), 2008-2018.

Models	Random Effects ^a				Fixed Effects ^b			
	1	2	3	4	5	6	7	8
GDP (log)	0.498*** (0.113)	0.505*** (0.111)	0.295** (0.125)	0.219* (0.123)	0.587*** (0.190)	0.600** (0.225)	0.199 (0.311)	0.021 (0.327)
MSCI World Index (log)		0.557*** (0.070)	0.467*** (0.080)	0.518*** (0.101)		0.525*** (0.111)	0.491*** (0.128)	0.556*** (0.160)
KOF Globalization Index			0.042*** (0.013)	0.046*** (0.015)			0.044* (0.024)	0.050* (0.024)
Conflict			-0.285** (0.125)	-0.396*** (0.133)			-0.325*** (0.110)	-0.468*** (0.128)
Current account balance / (% of GDP) (log)				-0.034 (0.030)				-0.043 (0.030)
Unemployment (log)				0.034 (0.128)				-0.038 (0.152)
Constant	YES	YES	YES	YES	YES	YES	YES	YES
Period effects	YES	NO	NO	NO	YES	NO	NO	NO
Observations	308	308	308	172	308	308	308	172
Countries	28	28	28	19	28	28	28	19
R_sq_within	0.390	0.367	0.397	0.462	0.390	0.368	0.398	0.465
R_sq_between	0.294	0.294	0.305	0.246	0.294	0.294	0.289	0.148

R_sq_overall	0.298	0.297	0.309	0.290	0.297	0.296	0.293	0.182
corr (u_i, Xb)					-0.182	-0.199	0.095	-0.008
Wald test	183.09	172.49	193.98	126.51				
Prob	(0.000)	(0.000)	(0.000)	(0.000)				
F-Stat on model specification					4.20	15.65	11.57	9.53
Prob					(0.000)	(0.000)	(0.000)	(0.000)
F-Stat of redundant time effects	33.35				4.67			
Prob	(0.000)				(0.000)			
rho	0.96	0.96	0.96	0.93	0.96	0.96	0.96	0.96
Hausman test	0.303	0.385	1.164	18.438				
Prob	(0.582)	(0.825)	(0.884)	(0.001)				

^a Swamy and Arora estimator of component variances. ^b Std. Err. (in brackets) adjusted for clusters. Statistical significance ***p < 0.01, **p < 0.05, *p < 0.10.

3. Conclusion

This paper has analyzed some factors associated with the size of SWFs defined as the AUM. One overarching finding we assert from this study is that the impact of financial market dynamics on the size of SWFs, while of comparable magnitude to the influence of the domestic economy, exhibits a greater degree of stability. In addition, findings also point out that socio-political factors play a role in explaining the size of SWFs. Indeed, it seems that international integration may exert an influence. Remarkably, the existence of an armed conflict significantly impedes the potential growth of AUM for SWFs. In more expansive terms, this evidence substantiates the significant influence of political factors on the size of SWFs. As of the composition of this brief article, numerous armed conflicts have emerged or intensified on a global scale. This would imply that there may be limited potential for further expansion in the size of SWFs. In other words, the prevailing global instability could impede the rate of asset accumulation by existing SWFs. Furthermore, this evidence also helps to elucidate why SWF managers recently may alter their investment strategies. As explained in Bortolotti et al. (2023), the orientation towards sustainable investments by SWFs has experienced a dramatic increase since 2018 also in the light of positive financial performance of ESG-driven corporations [see among others Rao et. al (2023); Chen et al. (2023)].

References

- Aggarwal, R., Goodell, J.W., 2018. Sovereign wealth fund governance and national culture. *Int Bus Rev* 27, 78–92. <https://doi.org/10.1016/j.ibusrev.2017.05.007>
- Aizenman, J., Glick, R., 2009. Sovereign Wealth Funds: Stylized Facts about their Determinants and Governance. *Int Fin* 12, 351–386. <https://doi.org/10.1111/j.1468-2362.2009.01249.x>
- Alhashel, B., 2015. Sovereign Wealth Funds: A literature review. *J Econ Bus* 78, 1–13. <https://doi.org/10.1016/j.jeconbus.2014.10.001>
- Al-Hassan, A., Papaioannou, M.G., Skancke, M., Sung, C., 2013. Sovereign Wealth Funds: Aspects of Governance Structures and Investment Management. IMF Working Paper No. 2013/231 <https://doi.org/10.5089/9781475518610.001>
- Aslam, F., Kang, H.-G., Mughal, K.S., Awan, T.M., Mohmand, Y.T., 2021. Stock Market Volatility and Terrorism: New Evidence from the Markov Switching Model. *Peace Econ, Peace Sci Public Policy* 27, 263–284. <https://doi.org/10.1515/peps-2020-0005>
- Avendaño, R. and Santiso, J. 2011. Are Sovereign Wealth Funds Politically Biased? A Comparison with other Institutional Investors, in Boubakri, N., Cosset, J.C. (Eds.) *Institutional Investors in Global Capital Markets*, Emerald Group Publishing Limited, Bingley, pp. 313-353. [https://doi.org/10.1108/S1569-3767\(2011\)0000012015](https://doi.org/10.1108/S1569-3767(2011)0000012015)
- Bae, J.W., Elkamhi, R., Simutin, M., 2019. The Best of Both Worlds: Accessing Emerging Economies via Developed Markets. *J Fin* 74, 2579–2617. <https://doi.org/10.1111/jofi.12817>
- Bahoo, S., Alon, I., Paltrinieri, A., 2020. Sovereign wealth funds: Past, present and future. *Int Rev Fin Anal* 67, 101418. <https://doi.org/10.1016/j.irfa.2019.101418>
- Bahoo, S., Hassan, M.K., Paltrinieri, A., Khan, A., 2019. A model of the Islamic sovereign wealth fund. *Isl Econ Stud* 27, 2–22. <https://doi.org/10.1108/IES-05-2019-0003>
- Balding, C., 2012. *Sovereign Wealth Funds*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199842902.001.0001>
- Bortolotti, B., Fotak, V., Megginson, W.L., 2015. The Sovereign Wealth Fund Discount: Evidence from Public Equity Investments. *Rev. Fin. St.* 28, 2993–3035. <https://doi.org/10.1093/rfs/hhv036>

- Bortolotti, B., Loss, G., van Zwieten, R.W., 2023. The times are they a-changin'? Tracking sovereign wealth funds' sustainable investing. *J Int Bus Polic* 6, 276–305. <https://doi.org/10.1057/s42214-023-00161-4>
- Boubaker, S., Goodell, J.W., Pandey, D.K., Kumari, V., 2022. Heterogeneous impacts of wars on global equity markets: Evidence from the invasion of Ukraine. *Fin. Res. Lett.* 48, 102934. <https://doi.org/10.1016/j.frl.2022.102934>
- Boungou, W., Yatié, A., 2022. The impact of the Ukraine–Russia war on world stock market returns. *Econ Lett* 215, 110516. <https://doi.org/10.1016/j.econlet.2022.110516>
- Breusch, T.S., Pagan, A.R., 1980. The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics. *Rev Econ Stud* 47, 239. <https://doi.org/10.2307/2297111>
- Chen S., Song Y., Gao P., 2023, Environmental, social, and governance (ESG) performance and financial outcomes: Analyzing the impact of ESG on financial performance, *J Env Man*, <https://doi.org/10.1016/j.jenvman.2023.118829>.
- Clarke, W., 2016. Sovereign Patent Funds: Sovereign Wealth Funds 2.0? *Glob Policy* 7, 577–583. <https://doi.org/10.1111/1758-5899.12353>
- Cumming, D., Wood, G., Filatotchev, I., Reinecke, J. (Eds.), 2017. *The Oxford Handbook of Sovereign Wealth Funds*. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780198754800.001.0001>
- Dejong, F., Deroon, F., 2005. Time-varying market integration and expected returns in emerging markets. *J financ econ* 78, 583–613. <https://doi.org/10.1016/j.jfineco.2004.10.010>
- Diebold, F.X., Yilmaz, K., 2009. Measuring Financial Asset Return and Volatility Spillovers, with Application to Global Equity Markets. *Econ. J* 119, 158–171. <https://doi.org/10.1111/j.1468-0297.2008.02208.x>
- Dreher, A., 2006. Does globalization affect growth? Evidence from a new index of globalization. *Appl Econ*. <https://doi.org/10.1080/00036840500392078>
- Eldredge, C.D., 2019. Capability and need: A framework for understanding why states create sovereign wealth funds. *World Econ* 42, 1495–1519. <https://doi.org/10.1111/twec.12761>

- Fitzgerald, E.V.K., 1997. Paying for the war: Macroeconomic stabilization in poor countries under conflict conditions. *Oxford Dev St* 25, 43–65. <https://doi.org/10.1080/13600819708424121>
- Dreher A., Gaston G., Martens P. (eds.). 2008 *Measuring Globalisation*, Springer, New York, <https://doi.org/10.1007/978-0-387-74069-0>
- Gilson R. J., Milhaupt C. J. 2009. Sovereign Wealth Funds and Corporate Governance: a Minimalist Response to the New Mercantilism. *Rev. d'écon. Fin* pp. 345-362. <https://doi.org/10.3406/ecofi.2009.5520>
- Goel, S., Cagle, S., Shawky, H., 2017. How vulnerable are international financial markets to terrorism? An empirical study based on terrorist incidents worldwide. *J Fin Stab* 33, 120–132. <https://doi.org/10.1016/j.jfs.2017.11.001>
- Kakran, S., Sidhu, A., Bajaj, P.K., Dagar, V., 2023. Novel evidence from APEC countries on stock market integration and volatility spillover: A Diebold and Yilmaz approach. *Cog Econ Fin* 11. <https://doi.org/10.1080/23322039.2023.2254560>
- Kennedy, P., 1981. Estimation with Correctly Interpreted Dummy Variables in Semilogarithmic Equations, *Amer Econ Rev*, 71(4), p. 801. <https://www.jstor.org/stable/1806207>
- Lenihan, A.T., 2014. Sovereign Wealth Funds and the Acquisition of Power. *New Political Economy* 19, 227–257. <https://doi.org/10.1080/13563467.2013.779650>
- Omura, A., Roca, E., Nakai, M., 2021. Does responsible investing pay during economic downturns: Evidence from the COVID-19 pandemic. *Fin Res Lett* 42, 101914. <https://doi.org/10.1016/j.frl.2020.101914>
- Pempetzoglou, M., 2021. A Literature Survey on Defense Expenditures – External Debt Nexus. *Peace Econ, Peace Sc Pub Pol* 27, 119–141. <https://doi.org/10.1515/peps-2019-0049>
- Petrova, I., Pihlman, J., Kunzel, P., Lu, Y., 2011. Investment Objectives of Sovereign Wealth Funds: A Shifting Paradigm. *IMF Working Papers* 11, 1. <https://doi.org/10.5089/9781455211968.001>
- Quadrio Curzio A., Miceli V., (2010), *Sovereign Wealth Funds, A complete guide to State-owned investments funds*, Harriman House, Petersfield.
- Rao, A., Dagar, V., Sohag, K., Dagher, L., Tanin, T.I., 2023. Good for the planet, good for the wallet: The ESG impact on financial performance in India. *Fin. Res. Lett.* 56, 104093. <https://doi.org/10.1016/j.frl.2023.104093>

- Schneider, G., Troeger, V.E., 2006. War and the World Economy. *J Conf. Res.* 50, 623–645. <https://doi.org/10.1177/0022002706290430>
- Tajaddini, R., Gholipour, H.F., 2023. Trade dependence and stock market reaction to the <scp>Russia-Ukraine</scp> war. *Int. Rev. Fin.* 23, 680–691. <https://doi.org/10.1111/irfi.12414>
- van den Boogaard, V., Prichard, W., Benson, M.S., Milicic, N., 2018. Tax Revenue Mobilization in Conflict-affected Developing Countries. *J Int Dev* 30, 345–364. <https://doi.org/10.1002/jid.3352>
- Wang, D., Weiner, R.J., Li, Q., Jandhyala S., 2021. Leviathan as foreign investor: Geopolitics and sovereign wealth funds. *J Int Bus St*, 52, 1238–1255. <https://doi.org/10.1057/s41267-021-00415-4>
- Wu, F., Seah, A., 2008. Would China's Sovereign Wealth Fund Be a Menace to the USA? *China World Econ* 16, 33–47. <https://doi.org/10.1111/j.1749-124X.2008.00120.x>

Appendix

Table A1: SWFs included in the panel.

SWF	Country
Future Fund	Australia
State Oil Fund of Azerbaijan (SOFAZ)	Azerbaijain
Mumtalakat Holding Company	Bahrain
Brunei Investment Agency (BIA)	Brunei
China Investment Corporation (CIC)	China
Kazakhstan National Fund	Kazakhstan
Revenue Equalization Reserve Fund	Kiribati
Kuwait Investment Authority	Kuwait
Libyan Investment Authority	Libya
Khazanah Nasional Bhd	Malaysia
Government Pension Fund - Global	Norway
State General Reserve Fund	Oman
Qatar Invesment Authority (QIA)	Qatar
Korea Investment Corporation (KIC)	Republic of Korea
National Wealth Fund	Russia
Government of Singapore Investment Corporation (GIC)	Singapore
Temasek Holdings	Singapore
Petroleum Fund	Timor-Leste
Emirates Investment Authority	UAE
Abu Dhabi Investment Authority (ADIA)	UAE/Abu Dhabi
Mubadala Development Company	UAE/Abu Dhabi
Investment Corporation of Dubai (ICD)	UAE/Dubai
Istithmar World	UAE/Dubai
RAK Investment Authority	UAE/Ras Al Khaimah
State Capital Investment Corporation	Vietnam
National Social Security Fund (NSSF)	China
National Pensions Reserve Fund (NPRF)	Ireland
New Zealand Superannuation Fund	New Zealand

