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Analysis of Sovereign Wealth Funds: From Asset Allocations to Growth

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Keywords: *sovereign wealth fund, asset allocation, SWOT analysis.*

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Analysis of Sovereign Wealth Funds: From Asset Allocations to Growth

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Abstract- This paper explores forecast of future growth of Sovereign Wealth Funds, we used data of number of funds that were created during period from 1976 to 2012. In this regard, we found that number of SWF´s will rise during period 2013-2030 by 61 from 74 to 135, it means an increase of number of funds by 82.43 percent more compared with during period 1876 till 2012. Second, we provide asset allocations of 14 observed SWFs and different strategies. Third, we examine if Sovereign Wealth Funds will play important role in the future, moreover in terms of assets under management of 74 observed funds in 2014. In addition to this, we found that that 93.21 percent of changes in assets under management of Sovereign Wealth Funds can be attributed to changes (investments) in each future quarters. Fourth, we examine whether the investments of country that set up Sovereign Wealth Fund is closely related to following variables x: gross domestic product, gross national savings, volume of exports of goods and services and general government gross debt, ergo, we observe data in 2013 of 45 countries with Sovereign Wealth Funds. Moreover, we found that 28.64 percent changes of total investments of the country that set up Sovereign Wealth Fund is attributed by changes of variables that are mentioned above.

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I. Introduction

Sovereign Wealth Funds (SWFs) has primarily focused on their unique ability to merge the most feared elements of the public and private sectors: the power of private finance and state coerciveness. More to the point, SWFs were not originally created to establish the perfect blend of state centric coercive power and market oriented financial acumen, but to solve very real economic policy dilemmas. In other words, SWFs increased their importance in the global financial system in the last decade and especially during the financial crisis period. Ergo, the overall investment appraisal framework plays an important role in ensuring that the SWFs strategic objectives are achieved, in other words that the acquisition process is supported by rigorous, robust financial analysis. In sum, this will help SWFs to satisfy their fundamental aims, including capital preservation, value creation and furthering the national agenda.

However, the investment appraisal framework is a fundamental part of a SWFs operations and this can, and should, be continually reviewed to identify areas for improvement. Viewed in this light, the cause for deals proving successful or unsuccessful can, in a large part, be tracked by following factors: first, back to the original investment, second, the quality of the decision-making and lastly, level of challenge arising from the investment appraisal framework. However, investments of SWFs is already increasing. On the one hand, SWFs work to boost economic diversification, on the other hand they seek performance and returns when they invest internationally. Nonetheless, the influence of SWFs has become undeniable, with total assets topping USD 6.585 tn in June 2014, these investors have reached a size comparable to that of the entire alternative assets industry. According to International Sovereign Wealth Fund Institute 2012 report comparing the assets under management (AUM) of these funds with the market capitalization of 16 top stock exchanges of the world suggests, that the AUM of SWFs are more than all the exchanges except NYSE Euronext (US) with market capitalization of USD 12.6 tn.

a) The Objectives

The research objectives of this paper are presented as follows: What is forecast of future growth of SWFs? Will play SWFs important role in the future? Are investments of the country that set up SWF closely related to gross domestic product, gross national savings, volume of exports of goods and services and general government gross debt?

b) Data and Methodology

The methods to be deployed in this thesis are qualitative and quantitative analysis, comparative research. On the other hand, literature concerning these funds is contained mostly in financial institutions research, macroeconomic publications of countries, academics. In this regard, we also use analytic, statistical methods, regression analysis, moving average, SWOT analysis. We present forecast of future growth of SWF´s, for calculations we used data of number of funds that were created during period from 1976 to 2012 according to the data from SWF Institute, last updated July 2014. We used linear trend by method of least squares. In addition to this, testing hypothesis we examine through method of least squares MLS, analysis of variance ANOVA. We examine if SWFs will play important role in the future, moreover in terms of AUM of 74 observed funds, and we used quarterly data

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from website of Sovereign Wealth Funds Institute, last updated July 2014. Than we examine whether the investments of country that set up SWF is closely related to following variables x: gross domestic product, gross national savings, volume of exports of goods and services and general government gross debt. Ergo, we observe 45 countries with SWFs according to the data from Sovereign Wealth Fund Institute, and World Economic Outlook of IMF, 2013.

c) Structure of the Study

The remainder of this paper proceeds as follows: Section 2 provides variety of definitions on this subject. First, we present a number of studies on the subject of SWFs since 2007 till 2014, more to the point among authors examined this subject. Second, we present where SWFs invest, in short we provide latest available asset alocation of 14 observed SWFs. Than, we also focus on future growth of SWFs. Section 3 includes testing hypotheses, section 4 contains SWOT analysis and section 5 concludes the paper.

II. Literature Review

However, for better understanding how a Sovereign Wealth Fund (SWF) may impact to foreign economic policy it is necessary to describe variety of definitions of this subject. More to the point, McKinsey & Company (2007) describes that SWFs are funded by the Central Bank's reserves, aimed to maximize the returns within manageable risk bands. On the one hand, according to the Organisation for Economic Cooperation and Development (OECD–August 2008) SWFs are essentially: foreign exchange reserves, the sale of scarce resources such as oil, or from general tax and other revenue. On the other hand, the EU Commission (2008) describes SWFs as state owned investment vehicles, which manage a diversified portfolio of domestic and international financial assets. In other words, SWF´s are mainly created when countries have surplus revenues, reserves and their governments feel it would be advantageous to manage these assets with a view to future liquidity requirements and as a way of stabilising irregular revenue streams argued by Gugler, P.; Chaisse, J. (2009). Alter, Miracky and Bortolotti (2009) presented definitions of SWFs as follows: (i) an investment fund rather than an operating company, (ii) that is wholly owned by a sovereign government, in other words organized separately from the central bank or finance ministry to protect it from excessive political influence, (iii) that makes international and domestic investments in a variety of risky assets, (iv) that is charged with seeking a commercial return, and (v) a pension fund, the fund is not financed with contributions from pensioners and does not have a stream of liabilities committed to individual citizens.

It is important to mention a number of studies on the subject of SWFs since 2007. In this section we present related research of academics. Jones, S. G. - Ocampo, J. A., (2008) presented in details the evolution of foreign exchange assets in different parts of the developing world, optimal reserves, developed a broader framework for the analysis of the motives for the accumulation of foreign exchange assets. Matoo, A. - Subramanian, A. (2008) described imbalances between undervalued exchange rates and SWFs. They proposed new rules in the WTO to discipline cases of significant undervaluation that are clearly attributable to government action. Beck, R.; Fidora, M. (2008) provided background of the impact of sovereign wealth funds (SWFs) on global financial markets, impact of a transfer of traditional foreign exchange reserves to SWFs on global capital flows. Among authors examined subject of SWF, Baptista, A. M. (2008), Miracky *et. al.* (2009), Bernstein, S.; Lerner, J.; A. Schoar (2009). Al-Hassan, A. *et al.* (IMF, 2013) presented a systematic (normative) manner the salient features of a SWF's governance structure, in relation to its objectives and investment management that can ensure its efficient operation and enhance its financial performance. Bortolotti *et. al.* (2013) examined of 1.018 SWF´s equity investments in publicly traded firms and a control sample of 5.975 transactions by private-sector financial institutions over 1980-2012. They found that announcement-period abnormal returns of SWF investments are positive, but lower than those of comparable private-sector investments by approximately 2.67 percentage points. Bodie, Z., Brière, M., (2013) described management of sovereign wealth from the perspective of the theory of contingent claims. They suggest institutional arrangements that could overcome this obstacle and enable efficient coordination. Chen, S. Y. (2013) addressed certain issues that may arise where a SWF is a claimant in investor-State arbitration. In short, SWFs should not be discouraged from settling issues with a host State through investor-State arbitration. Rose, P. (2014) described the evolution of foreign investment regulation in recent years, analysis of Foreign Investment in the United States Act (FINSA), including the key statutory definitions that determine the regulatory pathway of a foreign investment transaction. Gelb *et. al.* (The World Bank, 2014) focused on the main priorities concern the criteria for selecting investments, partnerships, external and internal governance arrangements, transparency, reporting and consistency with macroeconomic policy. Backer, L. C. (2014) described that SWFs incarnate and replicate the collisions between two tectonic forces that are grinding their way to a new normative framework of governance and power. Etemad, A. (2014) has explored the effect of the sovereign funds on the volatility of macro-variables. His results showed that a larger size of funds seems to slightly reduce the volatility of government spending. Gilligan *et. al.* (2014) noted that there are inescapable political dimensions to SWFs and other forms of state

capital. Exempli gratia, Australian political context, where the current national government has been finalising bilateral trade deals with Japan and South Korea.

a) Objectives of SWF´s

There are many SWFs with multiple objectives, based on Al-Hassan, A. et al. (IMF, 2013) and the Santiago Principles taxonomy, five types of SWFs can be distinguished as follows: First, stabilization funds are set up to insulate the budget and economy from commodity price volatility and external shocks (e.g., Chile (Economic and Social Stabilization Fund), Timor-Leste, Iran, and Russia (Oil Stabilization Fund)). Their investment horizons and liquidity objectives resemble central banks reserve managers, in view of their role in countercyclical fiscal policies to smooth boom/bust cycles. They tend to invest largely in highly liquid portfolio of assets (and sometimes in instruments that are negatively correlated with the source of risk being addressed with the fund) by allocating over 80 percent of their assets to fixed income securities, with government securities consisting around 70 percent of total assets. Second, savings funds intend to share wealth across generations by transforming nonrenewable assets into diversified financial assets (Abu Dhabi Investment Authority, Libya, Russia (National Wealth Fund)). Third, development funds are established to allocate resources to priority socio-economic projects, usually infrastructure (e.g., UAE (Mubadala) and Iran (National Development Fund)). Fourth, Pension reserve funds are set up to meet identified outflows in the future with respect to pension-related contingent-type liabilities on the government's balance sheet (e.g., Australia, Ireland, and New Zealand). They held high shares in equities and other investments to offset rising pension costs. Fifth, reserve investment corporations intend to reduce the negative carry costs of holding reserves or to earn higher return on ample reserves, while the assets in the funds are still counted as reserves (e.g., China, South Korea, and Singapore). To achieve this objective, they pursue higher returns by high allocations in equities and alternative investments, with up to 50 percent in South Korea and 75 percent in Singapore's Government Investment Corporation.

b) Asset Allocations

Moreover, asset allocation designs the long-term strategic neutral benchmark for the total portfolio, with goal of maximise expected returns subject to risk tolerances and liquidity constraints. However, risk is defined as the probability of a loss or underperformance relative to a reference asset, such as T-bill or a government bond, over a given horizon. On longer horizons, equities are less volatile than short-term instruments because of the reinvestment risks associated with short-term investments. In nuce, infrastructure, real estate, and private equity are long investment horizons because of ability to invest in illiquid assets to enjoy the illiquidity premium. In other words, SWF´s assets and the returns can have a significant effect especially on public finances, monetary conditions, external accounts and balance sheet linkages with the rest of the world. IMF (2013) presents following factors: First, *Fiscal policy* might be affected by SWF funding and withdrawal rules that are usually derived from a fiscal rule. Second, *monetary policy* may be impacted by wide fluctuations in fiscal revenues and procyclical implications for aggregate demand that typically affect inflation and the real *exchange rate.* Third, exchange rate variations could be mitigated by investing the SWF's resources abroad.

i. *Analysis of observed asset allocations*

Strategic asset allocation optimize allocation proportions of each asset class (bonds, equities, alternative investment). We provide latest available asset allocation of 14 observed SWFs. Therefore, the section follows compares the actual asset allocations of savings funds, stabilization/savings funds, pension reserve funds, reserve investment funds. For this purpose, we categorize assets into four classes: allternative assets, fixed income, cash and public equties. Alternative assets may include private equity, hedge funds, property, commodities, infrastructure, forests, absolute return. Infrastructure projects include transportation/logistics, power/energy and utilities (e.g., water, waste water, natural gas networks). Fixed income includes bills, notes, and bonds of the treasury, and corporate bonds. Cash includes current accounts and other cash-equivalent instruments. Public equities comprise domestic and global stocks, including those of both developed and emerging markets.

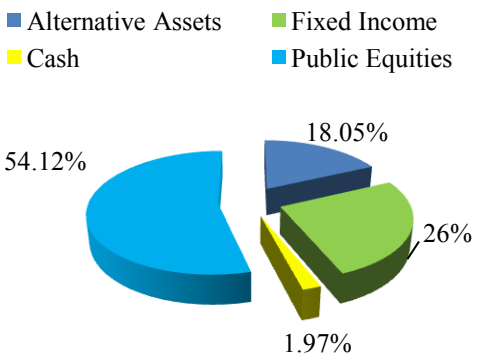

Figure 1 : Asset allocations of savings funds

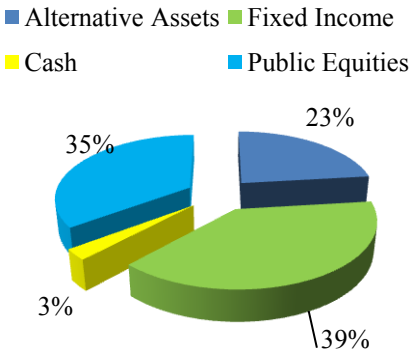

Figure 2: Asset allocations of stabilization/ savings funds

Source: Author´s comparison according to available data from SWFs websites, reports and authors' calculations.

Figures 1 above illustrates allocation of savings funds that includes average of data of following observed funds: Government Pension Fund Global - Norway - 1Q 2014, Botswana - Pula Fund - 2Q 2013, Alberta Heritage Savings Trust Fund - 1Q 2013, Alaska Permanent Fund Corporation – 2013. In other words, Alberta Heritage Savings Trust Fund - Canada (AHSTF) had asset allocation composed from 53 percent in public equities, 20 percent in fixed income and 27 percent in alternative assets in 1Q 2013. Alberta's revenue is from non-renewable resource, supports government programs like health care and education. Cash is excluded from portfolio of Savings funds, except Botswana holds 7.86 percent. Alaska invested by 6.6 percent more in equities than Alberta. On the other hand, Botswana - Pula Fund invested by 5.27 percent more in public equities than GPFG Norway. GPFG Norway invested by equity in 1Q 2014 in financial sector, industrials and consumer goods. The fund's largest equity holdings are follows: Nestlé SA, Royal Dutch Shell Plc, Novartis AG. On the other hand, fund's largest bond investments includes United States of America, Japanese government, Federal Republic of Germany. Figure 2 presents average of observed data of Timor Leste Petroleum Fund – 2013, Nigeria Sovereign Investment Authority – 2012, National Development Fund of Iran – 2013, Hong Kong Monetary Authority Investment Portfolio – 2013. Timor Leste´s fund increased by 31 percent investments in public equties, decreased from 95 percent to 65 percent investments in fixed income from period 2011 till 2013. Hong Kong´s fund maintain same asset allocations in 2011, 2012 and in 2013 increased by 1 percent investments in public equities and decreased by 1 percent in fixed income. Nevertheless cash figures are excluded from Timor Leste and Hong Kong´s fund. Iran´s NDFI plans to strengthen economy through assistance of private sector and cooperation of provincial governors. Hong Kong Monetary Authority in terms of target currency mix, 77 percent of his assets are allocated to the US dollar and the Hong Kong dollar, and the remaining 23 percent to other currencies.

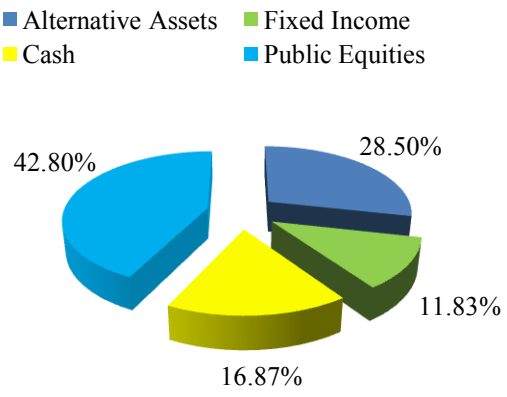

Figure 3: Asset allocations of pension reserve funds

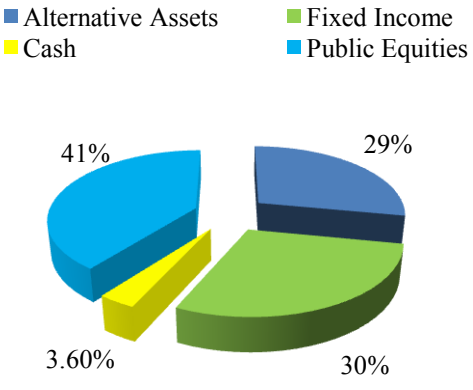

Figure 4: Asset allocations of reserve investment funds

Source: Author´s comparison according to available data from SWFs websites, reports and authors' calculations.

Figure 3 includes average of data of Ireland, National Pensions Reserve Fund - 1Q 2014, Australia Future Fund - 1Q 2014, New Zealand Superannuation Fund - 2Q 2013. NPRF Ireland decreased investments in public equties from 33.7 percent in 2012 to 24.1 percent in 1Q 2014, and also by 13.3 percent decreased investments in alternative assets. Australia´s fund invested 34.70 percent in alternative assets, an increase by 4.70 percent in comparison with New Zealand Supernnuation Fund. New Zealand holds by 18.4 percent more in public equties compared with Australia´s fund. Australia´s fund focus on more liquid credit sectors this includes areas such as investment grade corporate credit, higher quality asset backed securities, and some areas of the liquid high-yield and corporate loans markets, exposure to alternative or non-traditional risk premia such as commodities, volatility and re-insurance. Figure 4 shows average of data of China Investment Corporation – 2012, Government of Singapore Investment Corporation – 2013, Korea Investment Corporation – 2012. China Investment Corporation is composed from 45,1 percent of alternative assets, 32 percent of public equties. Government of Singapore Investment Corporation increased assets in cash by 4 percent, and decreased investments in public equities from 49 percent to 46 percent during period from 2012 to 2011. Korea Investment Corporation increased by 5.20 percent investments in alternative assets, and conversely decreased from 46.70 percent to 38.80 percent investments in fixed income from 2010 to 2012. Cash figure is excluded from KIC fund.

c) Size

What explains the size differences of SWFs? The size of a SWF´s depend primarily on its purpose and the size and wealth of the state funding it. Nevertheless the exact size of the funds is uncertain due to the opaque nature of SWF´s. More to the point, the relative size of an SWF compared to the whole economy can be quite substantial, especially for the older SWFs. Viewed in this light, in case of the Republic of Kiribati's Revenue Equalization Reserve Fund, SWF assets amount to three times the country's GDP explained by Curzio/Miceli (2010). In sum, the SWF puts the country in a relatively comfortable position, because it represents a cushion for future governmental funding gaps.

i. *Forecast of increase number of SWFs*

At this point we focus on future growth of SWF´s, for calculations we used data of number of funds that were created during period from 1976 to 2012 according to the data from SWF Institute last updated July 2014. We used linear trend by method of least squares. According to the number of funds we see an increase by 3 funds annually, forecast from 2013 to 2030 illustrated in Figure 5 and 6. By using values (years; T, y) through graphs we obtained formula $y = 0.0254x - 47.915$, $R^2 = 0.1777$ (see Figure 2). Then we calculated by using this formula others variables in Table Y~; (y/Y~)*100; % coeficient. Then by using T* and y, we may obtain formula $y = 0.0254x + 2.6762$, $R^2 = 0.17771$. We used this formula for calculations of forecasts, moreover our value y from 2013 till 2030.

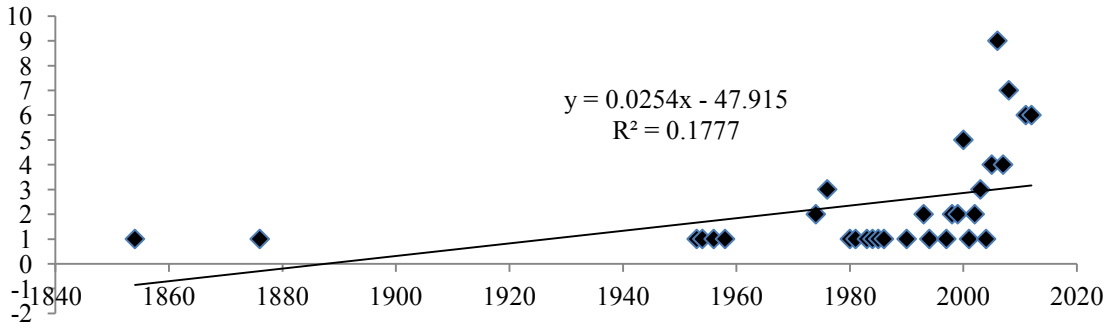

Figure 5: Regression function

*Source: Author´s estimation according to data from SWF Institute, last updated July 2014 *Year of Saudi Arabia is not available.*

Regression output which depicted in Figure 5-6 is much more positive in the favor of positive linear relationship. The most important statistics here is that coefficient of determination R^2 is 17 percent of total variation around the mean value of y is explained by the variable x included in the model, so quite well for a cross sectional regression analysis. And 17.77 percent of change of numbers of funds is caused by year, so 82.23 percent change of number of funds is not attributed by year of set up. However, number of SWF´s will rise during period 2013-2030 by 61 from 74 to 135, it means an increase of number of funds by 82.43 percent more compared with during period 1876 till 2012.

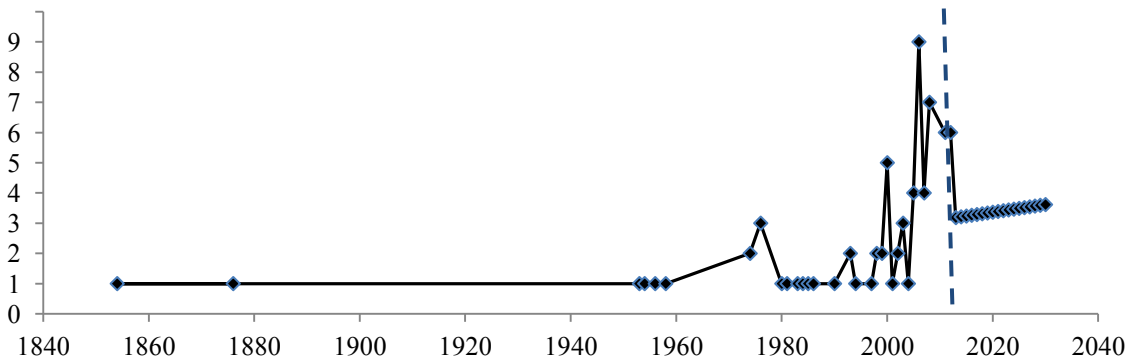

Figure 6 : The forecast of SWFs

*Source: Author´s estimation according to data from SWF Institute, last updated July 2014 *Year of Saudi Arabia is not available.*

In short, SWF´s are not a new phenomenon, but by increasing number of funds show their presence in global finance and economic and financial relations.

III. Hypotheses

Based on data analyzed for the paper, we developed following hypothesis and preliminary results are demonstrated in this section. In sum, presented calculations are the best author´s estimation.

a) Testing Hypothesis I.

We formulate next hypothesis in terms of Assets Under Management of 74 observed funds, and we used quarterly data from website of Sovereign Wealth Funds Institute, last updated July 2014. We composed hypothesis as follows:

H_0: SWFs will play an important role in international finance in the future.

H_1: SWFs will NOT play important role in international finance in the future.

If we look at moving average, one of the basic tools of technical analysis, was based on the fact that determining the trend from the graph can be quite difficult and inaccurate, due to cyclical fluctuations. We used functions of a moving average, presented in Appendix B, for identifing trends and measure the strength of an AUM of SWFs. Moving averages can be beneficial in setting stop-losses. The number of periods for moving average is K=3 constant. A simple moving average is calculated as the sum of values in a given time period divided by the number of values.

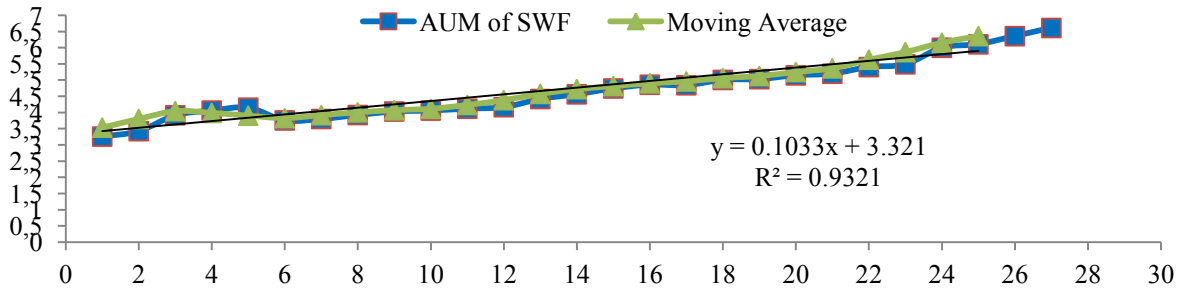

Figure 7 : Moving average

Source: Author´s estimation according to data from SWF Institute, last updated July 2014

As is revealed by Figure 7 the coefficient of correlation is positive and the coefficient of determination is R^2=0.9321; what means that 93.21 percent of changes in AUM of SWFs can be attributed to changes (investments) in each future quarters. In short, we may say that SWF will be bigger than today, more highly liquid, and focus long-term, less sensitive than for example Hedge Funds, Private Equity.

b) Testing Hypothesis II.

At this point we want to know whether the investments of country that set up SWF is closely related to following variables x: gross domestic product, gross national savings, volume of exports of goods and services and general government gross debt. We will use regression analysis, transferring observed data using the least squares method. Lets analyze the impact

of variables that are mentioned above on the investments of the countries. We observe 45 countries with SWFs according to the data from Sovereign Wealth Fund Institute, and IMF. Results coming out from regression statistics bellow and ANOVA show that the correlation coefficient is 0.5351 (Multiple R), positive in the favor of positive linear relationship, it means high dependency between y (investments of country) and observed variables. The coefficient of determination R^2 = 0.2864 means that 28.64 percent changes of total investments of the country that set up SWF is attributed by changes of our variables X; so 71.36 percent of changes of investmenst of countries is attributed by other variables. Standard error indicates that the average of prediction error in total investments of countries is 9.5544.

Table 1 : Regression statistics

Multiple R	0.535
R square	0.286
Adjusted R square	0.194
Standard Error	9.554
Observation	45

Source: Author´s estimation

Table 2 : ANOVA

	Difference	SS - sum of squares	MS - mean squares	F	The significance of F
Regression	5	1429.069	285.813	3.130	0.018
Residues	39	3560.182	91.286		
Total	44	4989.251			

Source: Author´s estimation.

The significance of F is 0.0180<0.05; what is statisticaly significant (+). The parameter β is high statistically significant because the P-value is 0.000159466<0,01; (++). The parameter x_1 is not statistically significant because the P-value is 0.383368228>0,05; (-). The parameter x_2 is high statistically significant because the P-value is 0.000786096<0,01; (++). The parameter x_3 is not statistically significant because the P-value is 0.18496218>0,05; (-). The parameter x_4 is not statistically significant because the P-value is 0.492766467>0,05; (-). The parameter x_5 is not statistically significant because the P-value is 0.556055605>0,05; (-). And we obtained regression function as follows: $y=15.54359971 + 0.000481477x_1 + 0.3790898x_2 - 0.269225351x_3 - 0.126713805x_4 - 0.027351623x_5$. More to the point, if we want to calculate the total investments of the country of Angola, we get after substituting into the regression function;y=15.54359971+0.000481477*121.704+0.3790898*18.242-0.269225351*9.291-0.126713805*0.959-0.027351623*26.638=19.16607; that shows 19.16 percent of total investments of GDP.

Table 3 : ANOVA

	Coefficients	Standard Error	t Stat	P-value
Investment	15.543	3.718	4.179	0.000
Gross domestic product, current prices	0.000	0.000	0.881	0.383
Gross national savings	0.379	0.104	3.641	0.000
Volume of imports of goods and services	-0.269	0.199	-1.349	0.184
Volume of exports of goods and services	-0.126	0.182	-0.692	0.492
General government gross debt	-0.027	0.046	-0.593	0.556

Source: Author´s estimation

At this point we want to test the assumption of mean value of random residuals will be zero, according to the results from Residual outputs below. We formulate hypothesis as follows:

$$\mathbf{H_0}: \quad E\left(\vec{u}\right) = 0$$

$$\mathbf{H_1}: \quad E\left(\vec{u}\right) \neq 0$$

$$\bar{x}_e = \frac{\sum e_i}{n} = -1.53951E-15$$

We may use formula above. As a result coming out from this formula we can say that average residuals is low, the mean value is close to zero, so we accept null hypothesis.

IV. Swot Analysis

At this point, after our research, we provide SWOT analysis below that briefly analyzes SWFs. We use these an analytic method to determine competitive strengths, competitive weaknesses, opportunities and threats of the funds. In this regard, through clearly identifying these factors may funds, companies, etc. determine the future development, formulate strategy and an appropriate policy strategy.

Table 4 : SWOT analysis

Strengths	Weaknesses
• strong growth (rise in oil prices, commodities or others) • long-term investment horizon • investments worldwide (shift in the structure of global finance) • already approved Santiago principles (their observance is arguable) • stabilize the country's economy through diversify of investments • create wealth for future generations • due the surpluses that are held outside the domestic economy (reduces the risk of domestic inflation)	• lack transparency (the management, strategy and investment objectives some of funds) • low reporting (some of funds do not provide annually, quarterly reports)
Opportunities	**Threats**
• transfer voting rights from management to shareholders due the acquisitions of firms • implementation the principles of responsible investments (environmental, social, governance issues) like Norway´s fund • potential entrance to new markets (South America, Sub-saharan Africa) • may play a major role in shaping the world economy in the future (due to growing economic power)	• investments for strategic political purposes • possible regulation of their investments in host country (protectionism of host country) • the excessive market fluctuation (influenced by the sub-prime crisis, losses in financial sector) • risk of exchange rate, interest rate etc.

Source: Author´s analysis

V. Conclusions and Implications

Consequently, we identified that savings funds invest 1.97 percent in cash, and the most part of assets holds 54.12 percent in public equities. Stabilization/savings funds invest 39 percent into fixed income, pension reserve funds invest into 42.80 percent into public equties, and reserve investment funds holds 41 percent in public equities. Moreover, we identified differences of 14 observed funds in their investment strategies. Whereas savings funds have varying proportions of public equities in their portfolios, cash figures are excluded except Botswana Pula Fund. Funds with stabilization/savings objectives usually invest more in fixed income. Pension reserve funds had the most assets in cash and on the other hand reserve investment funds holds assets in fixed income.

We found that forecast of numbers of SWFs shows that coefficient of determination R2 is 17 percent of total variation around the mean value of y is explained by the variable x included in the model, so quite well for a cross sectional regression analysis. Viewed in this light, 17.77 percent of change of numbers of funds is caused by year, so 82.23 percent change of number of funds is not attributed by year of set up. However, SWF´s must provide frequent reports for ministry of finance, the central bank and the fund's independent management checks and balances by the legislative branch.

We examined that SWF will play important role in the future. In short, coefficient of correlation is positive and the coefficient of determination is R2=0.9321; that resulted that 93.21 percent of changes in assets under management of SWFs can be attributed to changes (investments) in each future quarters. In sum, we may say that SWF will be bigger than today, more highly liquid, and focus long-term, less sensitive than for example Hedge Funds, Private Equity.

We came to the conclusion that investments of country that set up SWF is closely related to following variables x: gross domestic product, gross national savings, volume of exports of goods and services and general government gross debt. In this regard, the correlation coefficient is 0.5351 (Multiple R), positive in the favor of positive linear relationship, it means high dependency between y (investments of country) and observed variables. The coefficient of determination R2 = 0.2864 means that 28.64 percent changes of total investments of the country that set up SWF is attributed by changes of our variables X; so 71.36 percent of changes of investmenst of countries is attributed by other variables. On the other hand, the significance of F is 0.0180<0.05; what is statisticaly significant (+). The parameter β is high statistically significant because the P-value is 0.000159466<0,01; (++).

Notwithstanding, SWFs have recently drawn a great deal of attention, both in the popular press and academic research. Moreover, some of the attention is based on world leaders' and policy makers' discomfort with the unknown, as SWFs often fail to disclose their investment objectives. However, we can say that SWFs will play important role in future as a global investors.

VI. Discussion

The question are: Do SWFs appear to be similar with regard to their type and funding? What did cause their different asset allocations, growth across them? We contributed with findings that are mentioned in previous section, in short, in terms of asset allocation of SWF, whereas savings funds have varying proportions of public equities in their portfolios, debt (fixed income) are typically for stabilization SWFs. In sum, differences in observed asset allocations of SWFs may be due to reasons, including the investment objective, investment strategy (investment horizon), investment portfolio (strategic, tactic, target asset allocation), investment risk (portfolio, credit, liquidity, currency and interest rate, risk due to fact uncertainty in financial markets), investment return, opportunity cost, the funding source or sovereign balance sheet.

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