Managing Resource Revenues in Oil-Rich CAREC Countries: The Case of Azerbaijan

Vugar Bayramov

Tim McNaught

Elchin Rashidov

Center for Economic and Social Development

Baku, Azerbaijan

April 2011

The views expressed in this paper are the views of the author and do not necessarily reflect the views or policies of the Asian Development Bank (ADB) or its Board of Directors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this paper and accepts no responsibility fo any consequences of their use. Use of the term "country" does not imply any judgment by the author or the Asian Development Bank as to the legal or other status of any territorial entity. Authors and emails: Vugar Bayramov (Ph.D): vugarbayramov@cesd.az, Tim McNaught: timmcnaught@cesd.az, and Elchin Rashidov: elchin_rashidov@cesd.az

TABLE OF CONTENTS

I. ABSTRACT

The high inflow of oil revenues to Azerbaijan in recent years has led to large and unsustainable increases in government expenditures in the state budget and State Oil Fund of the Azerbaijan Republic. Given that oil revenues are exhaustible, volatile, and unpredictable, a sustainable fiscal policy must be enabled that allows for intergenerational equity, diversification in the economy, and predictable annual revenues that reduce pressures of appreciation. This paper aims to describe the recent and current management of oil revenues in Azerbaijan, provide a summary of international practices of natural resource management, and to make policy recommendations for future management of oil revenues. Recommendations include isolating oil money from the Azerbaijan economy, collecting it in the State Oil Fund, using permanent income hypothesis to employ a smooth distrubution function, and other investment considerations.

II. EXECUTIVE SUMMARY

Possessing large oil revenues gives the Government of Azerbaijan a unique opportunity to effectively use this newfound wealth by investing in development programs that can provide a lasting benefit to its citizens' social welfare, economic growth, security, and overall quality of life. On the other hand, the oil reserves and oil that has already been turned into liquid assets carries with itself risks of inefficiency and misuse due to the lack of institutional capacity created by traditions of bottom-up control and the legacy formed by years of participation in a centralized economy. Given that the flow of oil revenues has a finite life expectancy, the Government of Azerbaijan must implement a long-term

macroeconomic strategy, fiscal rule and implementation mechanisms that ensure that the oil money is saved in the most efficient way and that the benefits of the investments address high priority needs, are highly integrated, and sustainable.

The paper analyszes different scenarios of managing oil money in Azerbaijan and advocates for a strategy that involves the following:

- All of the oil rent money needs to be isolated from the economy and collected in the Oil Fund, meaning that it should not be transferred into the State Budget, and at the same time the Fund shouldn't replicate any functions of the State Budget
- The Fund should select the savings strategy and employ the smooth distribution function at the expense of the stabilization function
- The Fund resources should initially be invested abroad only
- The diversification principle needs to be prepared to illustrate the ceilings - expressed in percentages of the Fund's resources - that can be allocated in each country, each type of the business, and each company
- Ethical principles need to be prepared to outline the countries, the businesses and the companies where the Fund money can and cannot be allocated
- The correlation needs to be determined, where the more the Fund grows, the more the percentage share of it can be invested in equity shares rather than in T-bills
- The relationship between the risk, expected return, number of investments and overall Fund resources needs to be determined for the investers to serve the maximization principle, sticking to the Fund's rules, but not on their own discretion that may have a goal not fully overlapping with the Fund's goal
- Principles need to be developed for the future possibilities in investing in the domestic business sector, in the form of a separate bank that would expect the return for the Fund form the investing in the local business higher than from the investment abroad

Azerbaijan is now free to manage its own economy, but the Soviet legacy does not provide a strong institutional and legal framework and traditions for public expenditure management, public policy formulation, public participation, and accountability. The flush of oil money, being accompanied with a developing governmental institution, provides therefore the economy not only with opportunities but also with risks. Exporting the oil does not necessarily make the overall society richer than before, but simply turns the non-liquid assets into cash. Cashing the potential revenues of future generations should also place a heavy duty on the current generation to efficiently and transparently manage public resources.

III. INTRODUCTION

Natural resource-based revenues that have risen in spectacular ways in the past few years dominate the Azerbaijani economy. However, the non-oil sector of the economy remains undeveloped and fragile. Total public spending has grown rapidly, raising wage and input costs, heightening inflationary expectations, and underscoring the fragile competitive climate facing economic agents in non-natural resource sectors of the Azerbaijan economy. And Azerbaijan has experienced a massive increase in public investment expenditures over the past few years with capital spending increasing by approximately 1,200% in 2003-2008. This increase in capital expenditures has not been matched by an improvement in the rigor and transparency with which public investment programs and projects are developed and approved.

Currently, the State Oil Fund of Azerbaijan (SOFAZ) is not adequately meeting its central objective - preserving oil money for future generations – due to external pressures. It is difficult to protect the money from the consumption appetite. The following are the transfers from SOFAZ to the State Budget: US$686 million in 2007, US$4.713 billion in 2008, US$6.125 billion in 2009 and US$6.125 billion planned in 2010. The exisiting policy framework and execution have clearly failed and a new one needs to

be designed and implemented to ensure the efficient and ethical management of oil revenues.

The global crisis has affected Azerbaijan's economy through lower oil prices and declining external demand. The financial sector has remained relatively unscathed because of limited exposure to the international credit markets, although credit growth has recently slowed. The National Bank has tightened regulatory requirements for banks and has taken measures to support liquidity in the financial sector. This, along with stronger banking supervision and better portfolio and risk management skills by banks, is important to secure financial sector stability. The total Government of Azerbaijan (GoA) expenditures that in 2008 still showed an increase of 62%, decreased by 4% in 2009. This reduction and the global slowdown that brought a decline in food and commodity prices provided Azerbaijan with the benefit of decreasing inflation from 21% in October 2008 to 5% in May 2009.

Poverty in Azerbaijan is decreasing; the GoA reports a poverty decrease in households living below the poverty level from 46.7% in 2002 to 15.8% in 2007. Also, in terms of income distribution, Azerbaijan scores relatively well; its gini ratio is 0.365, which is 54th in the world. The economic outlook remains benign, but is sensitive to the unstable external environment and performance of the oil sector. However, since oil prices are increasing again, the financial future of Azerbaijan is improving. The government has adopted a more moderate pace of fiscal expansion than before. While this was 81% in 2008, the expansion was reduced to 14% for the state budget in 2009.

IV. AZERBAIJAN ECONOMY AND OIL REVENUES

Since 2004, Azerbaijan's economy has been amongst the fastest growing in the world, recording 10.8% GDP growth in 2008. Although net-exports of oil and gas remained the major driver of growth, the non-oil sector also recorded a positive growth. In 2008, inflation rose above 20%, due to a buoyant domestic demand, an expansionary fiscal policy and an accommodative monetary stance, in the context of rising international food

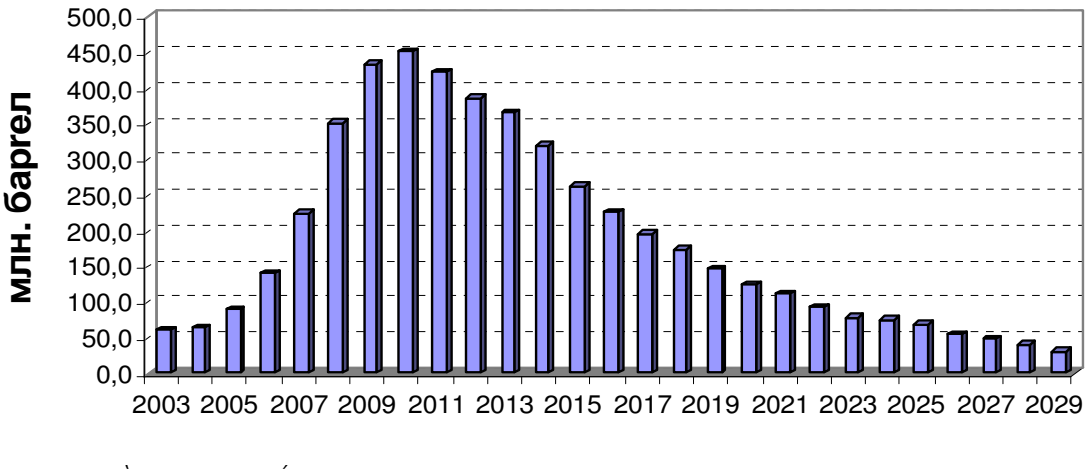
and commodity prices and persistent domestic supply constraints. Booming oil exports, increasing prices and a shift in the profit-sharing ratio of the oil consortium in favor of the government in 2008, contributed to a major strengthening in the external position and an accumulation of foreign assets. The rapid increase in oil production resulted in Azerbaijan's economy posting its fifth consecutive year of double-digit growth in 2006. Gross domestic product (GDP) expanded by a record 34.5% in real terms, the world's highest growth rate for the second year running. Since then, the rate of economic growth has declined, particularly in 2009, that started with low oil prices and the global economic turndown, that growth was very small with the state buget projected for the next year to be decreased for the first time in the recent period. By far, the greatest engine of growth has been the oil and gas sectors. The non-oil economy is mainly driven by state expenditures, and its share in GDP is falling as the oil economy expands. Foreign investment is expected to decline over time as the major oil and gas projects move toward less intensive stages.

The first hit was on state investments that declined in 2009 and the second wave is in 2010 when the overall state expenditures declined, though the economy did not yet reach the culmination of the oil production. The main challenge for Azerbaijan is to develop the non-oil sector to ensure that the economy continues to grow on a sustainable path after the oil boom, meeting both short-term expectations and longer-term demands. A key objective is to develop income-generating and new employment opportunities in the non-oil sector, in such priority areas as banking and finance, trade, and small and medium-sized enterprise (SME) development.

A. Anatomy of the Oil Inflows in Azerbaijan

The country is in the midst of an oil boom due to the development of its vast hydrocarbon resources in the Caspian Sea. Oil revenues are expected to peak in 2011. The country's oil and gas revenues are forecasted to be US$200 billion until 2024 (See Figure 1).

Figure 1: Oil Production, Forecast



The above graph shows that Azerbaijan will have huge oil revenues starting from 2009 to 2015. According to the forecast, 450 million barrels will be produced in 2010. The State Oil Fund of Azerbaijan (SOFAZ), created to invest the revenues garnered from the country's extensive oil reserves, is predicted to explode to over US$50 billion by 2010. Azerbaijan also expects to boost natural gas production and export starting in 2010. The country has proven natural gas reserves of roughly 2 trillion cubic meters. It is estimated that oil and gas revenues will reach in the tens of billions of dollars. In the long term, Azerbaijan's high dependence on oil exports poses a potential threat to the economy given the potential volatility in the international oil market.

Twenty-five oil contracts with thirty-three foreign companies from fifteen countries have been signed by the government in order to produce crude-oil in Azerbaijan. With the current pirce (1 barrel = $70 USD) it is approximately US$31.5 billion income from oil sale a year. Within the mentioned contracts, it is predicted that US$60 billion will be

invested in the oil sector where 4 billion tons of conditional fuel is expected to be produced. According to these contracts, the exploration of oil deposits should be finished during 3-5 years. In the case of finding a deposit that has commercial importance this time can be extended to 25 years. If oil deposits are not discovered then exploration costs are not paid back.

B. Is the Economy Ready for Oil Windfalls?

The economic life of Azerbaijan is closely tied to oil. Baku is said to have produced half of the world's oil in the 19th century and in the beginning of the 20th century. Azerbaijan used to produce a large share of the oil in the Soviet Union. But the economy was never so tied to the oil as revenues went to Moscow. Now, after separating from the rest of the USSR, Azerbaijan has a chance to benefit from the oil itself, but this also has changed the situation dramatically, making the economy heavily oil-dependent and bringing the huge responsibility of managing the oil resources efficiently and in a responsible manner.

Azerbaijan does not have a lot of experience in using oil resources independently; the short-term independence between 1918 and 1920 did not provide enough time and opportunity to develop an oil strategy for the country. The industrial production of the oil has always been controlled either by Tsarist Russia or from Moscow during the Soviet era, and thus took into the account the needs and strategy of a country much larger than Azerbaijan itself. Independence brings the opportunity and accompanying responsibility of developing the strategy of using the country's resources in a manner that would serve to its best interests in the longest term. These are all premises to conclude that we live in a historical period and there are huge variations in the implications for the future between different scenarios of our managing the resources now. Opportunities imply responsibilities, and today there are big opportunities to positively construct the future that puts huge responsibilities on the shoulders of the current generation. We will rely on this paradigm to construct the arguments throughout the paper.

C. Income tracking of State Oil Fund of Azerbaijan Republic

According to SOFAZ's reports, total assets of the fund are 11,966.5 million AZN (US$15,069.26). [1] The total transfers to the state budget are 10,265 million AZN (US$12,927 million).

In addition, the Fund's resources were transferred directly to the following projects:

1. Financing of the participation of the Republic of Azerbaijan in Heydar Aliyev Baku-Tbilisi-Ceyhan Main Export Pipeline Project (the project's financing closed in 2006) - 297.9 million AZN (US$375.14 million).
2. Settlement of the problems of conflict refugees and internally displaced persons - 612.9 million AZN (US$771.82 million).
3. Construction of the Oguz-Qabala-Baku water supply system - 547.4 million AZN (US$689.33 million).
4. Reconstruction of the Samur-Absheron irrigation system - 364.5 million AZN (US$459.01 million).
5. Transfers to the state budget – 10.265 billion AZN (US$12.927 billion)
6. Formation of the statutory capital of the State Investment Company (implemented in 2006) - 90 million AZN (US$113.336 million).
7. Financing "Baku-Tbilisi-Kars railway" - 48.1 million AZN (US$60.572 million)
8. Financing "The state program on the education of Azerbaijan youth abroad in the years 2007-2015" - 10.2 million AZN (US$12.845 million)

[1] USD1=AZN.7941 as of 28 February 2011. This present dollar equivalent of the manat is used in this paper.

9. Repayment of State Oil Company's share in the project on joint exploration and development of Azeri, Chirag and Guneshli oilfields - 87.6 million AZN (US$110.31 million)

Based on current asset management guidelines of the Fund, SOFAZ is allowed to invest only in investment grade instruments. The Fund's assets were invested in the following categories of debt instruments: Foreign government securities, debt issued by foreign governmental agencies, and debt issued by financial institutions and banks. External asset managers of the Fund are Deutsche Bank AG and Clariden Bank (Credit Suisse). Both external managers operate under a fixed income mandate. SOFAZ has trading arrangements with various financial institutions and banks such as Barclays (UK), BNP Paribas (France), Deutsche Bank, Dresdner Bank (Germany), JP Morgan (USA), HSBC (UK), Credit Suisse (Switzerland), Royal Bank of Scotland (UK), Society Generale (France), and Commonwealth Bank of Australia.

Deutsche Bank was a custodian for SOFAZ in 2002 before the State Street Corporation of the USA purchased the custodian business share of this bank, which has been the custodian for SOFAZ since 2003. Currency allocation of the Fund is as follows: US dollars (55%), Euro (35%), and British pounds (5%). The remaining 5 percent could be allocated into currencies of countries that have a long-term country rating of not less than A (Standard & Poor's, Fitch) or A2 (Moody's). Nominal annualized return of the Fund during the period 2001-2005 was 3 percent; annualized real return during the same period was 0.91 percent.

V. METHODOLOGY

The goal is to analyze the management of resource revenues in Azerbaijan. We plan to examine different facets of revenue management, specifically looking at each country's resource fund, and their savings and stabilization mechanisms, investments abroad, and to find out how resource revenues impact regional integration in CAREC. Additionally, we will outline the best practices for managing resource revenues that can be applied to

other CAREC countries. The project aims also to develop policy recommendations for the management of resource revenues to the government of Azerbaijan. The main directions are:

1. To analyze how much of the oil revenues should be saved (invested) or spent bearing in mind the potential for economic overheating, and other Dutch disease ramifications. Where should these savings be placed?

2. To list the best practices from Azerbaijan and Kazakhstan regarding oil revenue management.

3. To determine how much of the savings and the stabilization functions each funds should assume, and what are the implications for the funds' asset management strategy.

4. To determine the costs and benefits of domestic and foreign investment, and to develop the funds' strategies for diversification. How much of the oil revenues should be invested domestically, and under which circumstances? Should the funds invest in corporate equities or in government T-bills and bonds?

The following hypotheses are tested in this paper:

- As Azerbaijan's oil revenues have increased, there have been increasing transfers to the state budget. What are the effects of these transfers on overall economic development? Based on our objectives the following hypotheses will be thoroughly tested in the research:
- The delay in the shift to the life-cycle permanent income model by governments leads to the expansion of state budget expenditures to unproductive sectors of the economy, and lowers the budget deficit of the non-oil sector, thus leaving more burdens on future generations.
- When the inflow of foreign currency coming from oil exportation peaks in Azerbaijan, the indirect negative effects will outpace the direct positive effects, to the extent that overall economic indicators (for example, rapidly growing GDP, positive remainder of payment balance) are ultimately expressed in negative

figures (increase of deficit of the non-oil sector, of the foreign debt, high level of inflation rate).

To test the hypotheses, the research addresses a variety of empirical and comparative works conducted by economic researchers. It also examines the methodology of previous empirical research, as well as assessment indicators, and the outcomes in those countries where more than half of the export revenue are from raw material exports. The distinctive results of representative (selective) methods in the works of the research workers from such countries are assessed in the context of Azerbaijan. The main sources of data are bulletins and reports from government bodies, specifically the State Statistical Committees (SSC) and the Oil Fund. Also, official data and reports from international and local organizations are considered. An information bank has already been established by CESD and we heavily rely on information already collected in the bank. Data sources used include:

- Asian Development Bank (Key Indicators, etc.),
- National Statistic Committees of Azerbaijan and Kazakhstan (official data on oil and non-oil sectors),
- Eastern Bloc Energy Ltd. (CIS and Eastern European Energy Databook, etc.),
- International Energy Agency (Energy Balances of Non-OECD Countries, Natural Gas Market Review, World Energy Outlook, World Energy Statistics, etc.),
- IMF (International Financial Statistics, Directions of Trade Statistics, etc.),
- Oil and Gas Journal,
- UNCTAD (Commodity Price Statistics, Handbook of Statistics, World Investment Report, etc.),
- World Bank (Doing Business, World Development Indicators, etc.),
- United Nations Economic Commission for Europe, UNECE Countries in Figures (comparative figures of CIS countries).

Group discussions and surveys are held to empirically approach the topic. Therefore, both qualitative and quantitative methods are applied. Two main qualitative methods adopted for the study are:

1. Focus group discussions (FGD) using the mini-group approach. The views and positions on existing issues in oil revenue management in Azerbaijan, and on possible solutions vary to a great extent and may even be in conflict with each other. First of all, FGD facilitate the exploration of different positions and alternative solutions and support the research with different possible descriptions, explanations and recommendations. Secondly, FGD help to identify the stakes and influences different parties have on the issue, and provide insight into the ongoing politics and dependencies around the issue for institutional and capacity solutions along with regulatory and policy recommendations and the economic implications which are central to the research. Thirdly, FGD serve the research to arrive to a common position on strategic points and positions, to identify the advantages and disadvantages associated with different policy options, to avoid blind spots and to conduct a multifaceted test of the favorable ones for feasibility. Last, but not the least, FGD allow the project to map how different parties having stakes and views on these issues can be positively involved in the following stages of the research, including the preparation of the list of specialists and officials to be contacted for individual interviews. This is conducted by bringing together eligible individuals under the guidance of a moderator to discuss issues of interest. Different scholars, including the members of the National Budget Group, EITI coalition will be gathered together to test different opinions on oil revenue management.

2. Individual interviews (IDIs) involve semi-structured questionnaires. The objectives of interviews include the followings: to explore deeper individual views and institutional positions, gather alternate opinions and get more of necessary information to further analyze the findings of previously held FGD; to assess the stakes of different

institutions and to test alternate opinions expressed from different perspectives; to group and systemize alternative policy options, to provide legal, regulatory, institutional and capacity framework analyses, and to test the options for feasibility to arrive at an optimal solution and to help with necessary recommendations. Relevant government officials, including but not limited to the State Oil Fund of Azerbaijan Republic (SOFAZ), the State Oil Company of Azerbaijan Republic (SOCAR), the Ministry of Energy and Industry, the Ministry of Economic Development and the Ministry of Finance are interviewed. The list of interviewees also include international donors (IMF, ADB, WB, USAID and others), research institutes, think tanks and academia.

The following techniques are applied:

- The "simple random route walk" technique which is used for the selection of respondents to be interviewed.
- The face-to-face interviewing technique which is conducted using a structured questionnaire.

As the main objective of the project is for Azerbaijan to spend oil money effectively over a long-term period, different distribution models were evaluated. This includes modifications of the permanent income hypothesis (PIH), balanced budget rule, and the Bird in Hand approach. Unfortunately, there is no single fiscal rule that is optimal for all countries. Each country must choose an approach that fits the economy's unique situation. Here is an explanation of the different models and why the permanent income hypothesis was selected as the most prudent choice.

The Bird in Hand policy heavily discourages current expenditure of oil revenues in favor of saving more for future generations. This is accomplished by strict fiscal discipline. The government places all hydrocarbon revenues in a fund and is only allowed to annually withdraw a pre-determinded percentage of the value of the previous year's fund for the state budget. This percentage should be equal to the expected real rate of return of the fund.

Since 2001, Norway has used this approach by limiting transfers to the state budget to only 4% per year, with some room for increasing this number. Certainly, Norway is a good example for other countries in areas of its government's transparency, foresight, and fiscal disipline when dealing with a large influx of oil revenues. However, Heuty and Aristi (2009) argue that, "Even more than PIH, *Bird in Hand* is an unrealistic proposition for developing countries." In fact, they point out that it is more valuable for these countries to view the steps taken by Norway during its first two decades oil production after discovering oil in 1969.

Norway did not create the oil fund until 1990 and before that Norway was much more expansionary in its fiscal policy, focusing on education and developing those domestic industries viewed as having the greatest comparative advantage for the long-term economy. It is only after these initial protectionary steps taken by Norway to become a highly developed country, that the oil fund mangement became much more fiscally disciplined. Domestic priorities for Norway have shifted and now the focus is on providing a pension fund for an increasingly aging population. Certainly, Azerbaijan is at a different stage of development and its fund management must match this developmental process.

In addition, Harding and van der Ploeg (2009) illustrate that "the BIH rule is inefficient, since the government spends oil/gas revenues and reacts only to financial wealth in the Fund but not to hydrocarbon wealth in the ground." By preventing borrowing of future hydrocarbon wealth, it leaves the economy susceptible to low consumption before the windfall, booms of consumption during the windfall, and finally a return to normal consumption levels after the windfall. Hence, the BIH rule violates the principles of tax and consumption smoothing (e.g., Collier, et al., 2009).

On the opposite side of extreme fiscal conservatism evident in the BIH model is the balanced budget rule that calls for spending all annual oil revenues. The goal of this approach is to achieve sustainability by having "fiscal rules target a non-oil fiscal deficit that at most equals the financing provided by oil resources"(Segura 2006). However, as

resources dwindle it requires massive fiscal changes to be taken by the government that can prove very difficult to implement.

In addition, this approach heavily favors the current generation over future generations in terms of level of oil consumption and benefits. It also leaves the economy highly susceptible to the boom and bust cycles of world market oil prices. If oil prices fall drastically, then the overall effectiveness of oil revenues decreases. It is a very risky method and we do not recommend Azerbaijan to use this fiscal strategy.

A useful theoretical framework that we will apply to the project, with desirable intergenerational considerations is the permanent income hypothesis (PIH) formulated by Friedman (1957). This framework is between the two extreme fiscal rules mentioned before. Although PIH is a hypothesis, it is also applied as a model in oil revenue management. According to the PIH, both individuals and benevolent governments should be considered forward-looking, trying to balance consumption over time with permanent income. Where there is zero population and productivity growth in an oil producing country, the PIH implies that constant government consumption over time is equal to the annuity present value of expected oil wealth. By definition expenditures out of oil proceeds would be stable, thus avoiding boom-bust cycles. The added predictability this rule offers should in principle help policymakers avoid bottlenecks in absorptive capacity (Segura 2006). In addition, the Azerbaijan government created a Long-term Oil Revenue Management Strategy (LTORMS) in 2004 that adopted this principle of "constant real spending", which is equivalent to the PIH approach, but it has not yet been implemented.

Formally, using the PIH sustainable government consumption of oil wealth (GC) at any point in time t+1 would be determined as follows:

$$GC_{t+1} = r \times \left[F_t + \sum_{i=0}^{I} \frac{T_{t+1+i}}{(1+d)^i} \right]$$

Equation (1)

where Ft is the value of the accumulated revenue in the oil fund at the end of the previous year, in constant prices; **Ti** is the oil revenue the government expects (net of production costs) in period **i**, in constant prices; **r** is the expected average real rate of return on oil wealth; and **I** is the number of years until oil production ends.

Research by the World Bank (2009) illustrates that "based on the production profile as of June 2008, and the 2008 budget estimates, Azerbaijan can count on an estimated US$5.9 billion per year (at 2007 prices) of fiscal revenues from oil (including oil companies' tax payments) *in perpetuity*; on this basis, the Oil Fund would accumulate about US$78 billion by 2030." The World Bank recommends this PIH approach for two main reasons: it is robust to volatile short-term oil prices and it smoothens long-term fluctuations in prices or supply. Oil prices are difficult to predict and the PIH offers a long-term approach that helps level-off price changes and provides for a reliable and constant flow of revenues to the state budget. It is also recommended that the government recalculate the permanent income equivalent every three years to account for adjustments in future revenue forecasts.

There are many advantages to choosing the PIH approach. Constant real spending will allow government consumption to be predictable, sustainable, and provides intergenerational equity. In addition, a more stable fiscal policy will help release the pressure of appreciation in Azerbaijan's currency that has been created by rapid increases in government expenditures. Due to Azerbaijan's monetary policy of having a fixed exchange rate to the US dollar, appreciation has resulted in high inflation rates, making it more difficult for the local private sector to compete abroad. Reducing appreciation pressures will make it much easier for the economy to diversify.

Other variations of the PIH will also be considered. By applying this model, we intend to consider constant government consumption of oil wealth, non-oil GDP and etc. We choose this model because there are ties between the indicated theoretical model and hypotheses. Comparative application of both hypotheses will give more occasions

to conduct research by considering different factors. Our hypothesis, which addresses shifts in the life-cycle permanent income model, can be tested by the PIH.

We accept that there are some criticisms with the use of the PIH in managing oil revenues, especially by developing countries. When the initial capital of the economy, both physical and human, is low, the productivity gains of government social and capital spending of oil revenues could exceed the financial returns from oil savings. This can happen where there is production externality from government spending, particularly from the impact of public investment on productivity and the incentives it generates for private capital accumulation (Management of Oil Wealth under the Permanent Income Hypothesis, Alonso Segura, 2006). But compared to other models, such as Benchmark model, PIH will review more clear management of oil revenues, such as consumption of wealth and it will create a base to apply hypotheses to the Azerbaijani case. In conclusion,

VI. Invest Domestically or Abroad

Stimulating the non-oil sector with a proportion of foreign-held oil revenues could improve the finance and banking sectors of the country. One of the greatest impediments for the non-oil sector is the high level of interest rates in the banking sector of Azerbaijan. The interest rate of the Central Bank of Azerbaijan is 2% and the average interest rate of private banks is 20%. This number is not a good indicator for starting business in the non-oil sector of Azerbaijan, in addition to the other institutional impediments for the private sector.

The private sector and banks of Azerbaijan have a large demand for money. The Central Bank and private banks are only partly meeting this demand with international sources, whereas Azerbaijan could meet this demand entirely with its own resources. In other words, if the country has its own resources there is no need to borrow abroad to meet the demand in the country and to develop the non-oil sector of the economy. Bringing a fraction of foreign-held oil revenues to develop the non-oil sector of

Azerbaijan can maintain the economic sustainability of the country. It is not only a much more highly productive use of these resources, but this step would also deepen the diversification of the economy and prevent a possible “Dutch decease” in the future. This is also more productive than just using these resources to cover budget deficits and increasing public expenditures from which the government doesn’t get back fiscally and directly.

The standard macroeconomic literature suggests that real exchange rate appreciation will be accompanied by an increase in oil revenues. Generally, oil revenues increase the wealth of the overall country and consumers, which, leads to an increase in the aggregate demand.

Jeffrey Davis, Rolando Ossowski, James Daniel and Steven Barnett justify oil funds on political economy grounds: “Such funds may help the government to resist spending pressures if there are constraints on borrowing. These may reflect explicit fiscal rules or may arise from political difficulties in issuing debt.” As for the stabilization function, the authors justify it for the case when there is instability in fiscal revenue – this complicates fiscal management, budgetary planning, and the efficient use of public resources. Sharp cuts in expenditures can be disruptive and costly and increases in revenues can be a temptation to boost spending to unsustainable levels.

Large fluctuations in resource revenues may give rise to real exchange rate volatility, and increases in these revenues may lead to the ‘Dutch disease.’ There are also sometimes concerns that large revenue inflows may be misused or otherwise subject to poor governance. However, while the stability of incomes from investments provides a sense of assuredness, it cannot serve as the sole criterion for an investment decision. The main criteria are the expected growth and the minimization of risk. In addition, the revenue from deploying nonrenewable resources represents a depletion of wealth that could be saved for future generations. It is also not sustainable for the long-term, and in that respect it differs from other revenue types.

A strategy is important for creating rules for the effective management of the Fund. Having these strict rules is no less important for saving the nation's resources from short-term and populist programs, as they are for stemming corruption. And the presence of clear efficiency criteria and strict rules along with civil society development facilitates transparency in the management of the Fund. Reciprocally, that transparency becomes a guarantee of the effective management of the Fund and the growth of society's wealth, and thus increases the sense of ownership and the level of civil society along with democracy.

According to World Bank studies, the use of oil money inside a resource-rich economy habitually leads to real exchange rate appreciation. Azerbaijan's domestic prices are likely to outpace the rise in prices of its trading partners. It is because Azerbaijan is putting relatively more pressure on its domestic prices with the use of oil revenues than its trading partners are (indeed some of Azerbaijan's trading partners also have natural resources). There are two theoretically "sure"—but practically improbable—ways of avoiding real exchange rate appreciation: (i) keep the oil revenues abroad in U.S. dollars; and (ii) use oil revenues to only purchase imports. Only these two approaches would eliminate real exchange rate appreciation pressures.

Real appreciation materializes in the economy from either nominal appreciation or domestic inflation, or a combination of both. Each version has distinct implications for the domestic economy. Resource-rich countries may prefer managed or gradual appreciation (as opposed to floating their exchange rates) in the hope that the appreciation of the exchange rate does not overshoot, which could adversely affect the tradable sector. But importers effectively look at the real exchange rate of the country from which they consider importing to assess the price competitiveness of the country's goods. However, a managed appreciation policy often leads to higher domestic inflation, which is commonly viewed as a regressive tax that impacts the poor more than the rich. In Azerbaijan, which has chosen the managed appreciation route, inflation hit 19.7 percent at the end of 2007, and reached 15.3 percent in 2008. Besides the risk of

creating expectations of accelerating and volatile inflation, higher inflation submits the private sector (households and entrepreneurs) to unpredictable inflation taxes, and to higher costs (and risks) associated with investments.

To maintain competitiveness, real appreciation needs to be accompanied by higher productivity, which may be supported by public investment. Public investment is a way to boost productivity growth, hence to relieve long-run pressures on the real exchange rate. Productive public investment includes improving and maintaining the existing infrastructure in the water, transport, telecommunication, and power sectors as well as providing better education and social services to build human capital. Calderon and others (2004), using panel data for over 100 countries for 1960-2000, show that GDP growth is positively affected by the stock of infrastructure assets and that income inequality declines with infrastructure quantity and quality. Nevertheless, it is important to note that, although productive public investment fosters productivity growth in the long run, in the short run, it accelerates government spending and induces upward pressures on the real exchange rate. To moderate the pace of investment, it is critical to take into account the absorptive capacity of the economy. Limits to absorptive capacity point to the need for efficient implementation of investment decisions, which requires modern and effective vetting and implementation institutions. Thus, part of public investment should be directed at the institutional infrastructure to improve its capacity aimed at evaluating and monitoring public projects.

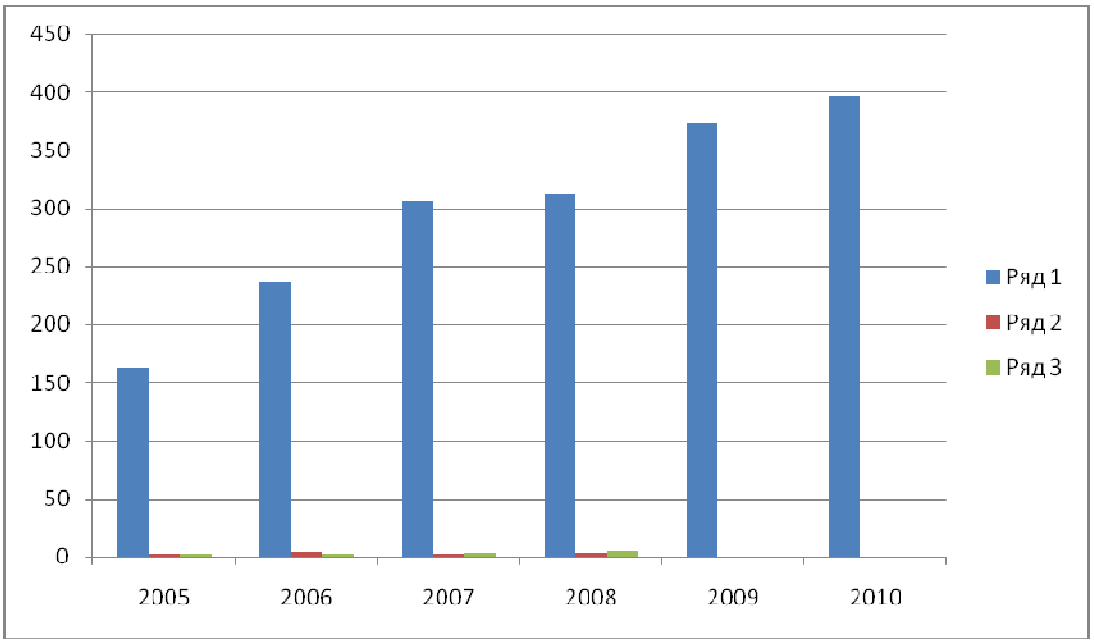
The low quality of Azerbaijan's education system has led to a lack of qualified labor in the country. In 2007, Azerbaijan ranked 23rd in Europe and Central Asia in the Knowledge Economy Index of the World Bank Institute (2008), ahead of only Uzbekistan and Tajikistan. In addition to the low quality, the training received by graduates does not meet the demands of the economy. There is an overproduction of specialists in areas that have limited job opportunities, such as in the education and health sectors, and a lack of specialists in sectors such as agriculture and services, which provide most of the jobs. The mismatch of skills leads to many positions in the private sector being unfilled.

In fact, at a Baku Job Fair in November 2007, no suitable candidates could be found for 50 percent of the 7,000 jobs offered (World Bank 2009).

Azerbaijan should make education reform a top priority. A government study should be undertaken to identify the current and future labor needs of the country, and to make the necessary changes in university curriculum to meet these demands. To increase the quality of education, corruption needs to be reduced and teacher salaries need to be raised. The presence of corruption lowers the value of a diploma In Azerbaijan and allows many students to attain diplomas without qualification. Investing more in the human capital of Azerbaijan will greatly assist in the country's diversification efforts by improving employment prospects in the non-oil sector of the economy. Medas and Zakharova (2009) show that transfer of oil wealth into infrastructure and human capital can lead to higher non-oil growth.

Transfers from SOFAZ constituted 47.6% of total state revenue in 2009, up from 35.3% in 2008, as the government used them to finance its accommodative fiscal policy. The share of such transfers in total revenue has been growing since 2006. The budget deficit amounted to AZN242 million (US$304.75 million) (0.7% of GDP). However, excluding SOFAZ transfers, the government ran a fiscal deficit of AZN5.1 billion (US$6.42 billion) in 2009 (14.8% of GDP), compared to an AZN3.8 billion (US$4.785 billion) (9.5% of GDP) deficit in 2008.

Figure 2: Oil Production in Azerbaijan (million barrels)



Sources: State Statistical Committee of the Republic of Azerbaijan. http://www.azstat.org (accessed 22 March 2010); ADB estimates.

The conclusion is that the country has huge investment opportunities domestically and oil money can also be directed to the domestic market. An index fund, which ensures that the investment in each company is proportional to its market value, can be used as an instrument for diversifying. But diversification only works well with a realistic and prudent approach to every investment decision. Expert advice and some skepticism are necessary, and the pitfalls of the underlying risk lurking behind seemingly high returns need to be carefully analysed. Decisions should not be guided by intuition or astrology. By the same token, non-transparent management is likely to lead to self-satisfying behavior and inefficient investment decisions. For the management of a public fund such as the Oil Fund, a methodology needs to be prepared in which investment decisions will take into account not only the risks and returns from investments, but also brokerage and investment charges. Better investment options are often described as a trade-off between a good dinner and a good night's sleep. This is to say that there is a large number of benefits to invest domestically which could indeed increase the overall return

for an investment portfolio, but then the group responsible for investments needs to have permanent control and keep track of ups and downs in order to be able to change investment decisions in a timely manner.

VII. OIL SAVINGS AND RESERVE MANAGEMENT FRAMEWORKS

The survey was conducted with the aim of determining the level of public awareness on usage of oil revenues and to become familiar with the attitude of both government bodies and companies. 70% of respondents employed by government-linked institutions claimed that citizens had adequate access to information about how their government utilized oil revenues, yet 82% of citizens interviewed said they had no idea about revenue and spending from the state oil fund (SOFAZ). Unlike the government entities impacted by the survey, the majority of surveyed people were doubtful about effective utilization of and transparency over oil revenues. At the same time, there were different approaches to transparency in the extractive industries voiced by both government structures and extractive companies. Most of the companies interviewed said they did not cooperate with civil society organizations, stressing there was no need for such cooperation. The government entities interviewed also said they just preferred cooperation with media outlets to civil society institutions. Although all government bodies interviewed claimed about effective use of and transparency over oil revenues, 81% of surveyed people reported the opposite.

None of the oil-producing companies interviewed obtained complete information on the targeted/correct use of funds they had paid to the government. Moreover, all of the public sector entities impacted by the survey supported the idea of regular reporting to a wide audience in a publicly accessible and comprehensible manner. Although they said all the projects were through monitoring and auditing, the interviewing of common people revealed a lack of such reporting. Only 25% of companies' representatives interviewed in the survey said they timely disclosed audit results to the public. The survey showed that public access to audit results in terms of activities of either foreign

oil companies or government-initiated projects was limited. Some 83% of respondents said they had not obtained information about SOFAZ's annual reports, yet the fact that 12 percent used the Internet as a database was a tremendous attention. 34% of public sector entities impacted by the survey assessed the activity of foreign extractive companies as 'transparent'. Very noteworthy is that the three groups interviewed had different approaches regarding the transparency.

VIII. INTERNATIONAL PRACTICES

The possession of hydrocarbons or other valuable natural resources itself does not always lead to economic success for a country. In fact, many states have failed to turn this natural resource wealth into a higher quality of life for its citizens. This is why it is important to study both the poor policy choices taken by these failed economic strategies and also to study the best practices of nations that have achieved economic success with their natural resource management strategies. At the same time, it is important to note that every country is unique and has different initial economic conditions that must be taken into account when developing a natural resource revenue management policy.

Norway's economy is widely considered to be the most successful to translate the oil money into the sustainable development of the country. The Norwegian government's intention of spending the oil revenues smoothly is considered the key for the success of the Norwegian economy to overcome the pitfalls associated with the oil boom. For that, Norway established the Petroleum Fund, the prototype of the Oil Fund in Azerbaijan where accumulated all the oil money. This money then was transferred into the bonds and corporate equities to generate the more stable income not dependent on the rate of the current oil production in the country.

Later the fund's fucntions were integrated with the national insurance scheme, and the fund continued to function under the name of the Pension Fund. The strategy of sterilizing the economy form oil money did not change however. The amount of the

money the government may withdraw for the budget puproses from the Fund is not again the function of the country's current oil production, but the function of the growth rate of the Fund separate from the current oil revenues. However, there were cases when the non-oil deficit of the budget was over the estimated annual non-oil growth of the Fund (Taraldsen, 2007). Ulrich F.W. Ernst characterizes Norway's strategy in managing the oil revenues in the following areas:[2]

1. Sterilizing the Norwegian economy from oil revenues; fund reserves are entirely invested abroad. Exchange rate between the krone (local currency) and other European currencies are kept stable through economic rather than monetary policies. The name of the fund has been changed to better reflect its image and mission. However, there is some emerging sensitivity to "domestic" arguments since the capital flowing out of the country becomes large while the fund also grows and becomes the largest single-managed fund in the world.

2. The investments are made in both fixed incomes and equity instruments - since 1998, up to 50% of total reserves are allowed to be invested in stock markets (foreign only). Now the investments in foreign market total to some 40 percent. The issue is to determine whether 50% ceiling, and the current 40% of investments in equity market is enough or too large. This is more of a debate over how much risk can be afforded versus the return expected. Now the fund is spreading investments across industries and regions for diversifying reasons as a measure to reduce the risk. And the management guidelines limit the fund's investments to five percent of the capital of any given company (the limit was 3% before 2006). The fund's exposure in the companies it has invested now averages to 0.3 percent.

3. Ethics involved in the investments: How to avoid conflicts of interest. How to make the fund allocations internationally responsible and not to invest in businesses involved unpeaceful and environmentally bad practices. If applied in Azerbaijan, this will

[2] Foiling the resource curse: Norway's Petroleum Fund Ulrich F.W. Ernst

exclude some countries and some businesses and particular companies in other countries from the list of the investment options for SOFAZ.

When discussing commodity funds, it is important to stress the importance of having rules set in place that do not allow politicians or government officials the ability to withdraw from the fund at their own discretion. This requires the fund's management to be transparent and immune to the whims of politicians. While the Norwegian Pension Fund is seen as a model for many countries, it in fact has few restrictions set in place to control what policymakers can do with oil funds, making it susceptible to the desires of political objectives. A better example of a fund that is better protected from political motives is the commodity fund of Sao Tome and Principe, established in 2004. It includes extensive restrictions that guide how oil revenues are to be saved, invested, or spent. It is illegal for outflows to exceed the amount that can be sustained in perpetuity (Frankel, 2010).

The Alaska Permanent Fund has a unique way of managing its oil earnings. State law in Alaska dictates that half of the investment earnings of the Fund are to be equally distributed to every state resident on an annual basis. Public opinion polls show high support for the policy. The theory behind this management strategy is that citizens know how to spend the money better than their government. One downside to this approach is that even if it was proven by economic and policy analysts to be ineffective, the government would face fierce public opposition in changing the fiscal policy.

Chile government officials have recently been praised for their counter-cyclical fiscal policy. While many countries have suffered from the global economic slowdown, Chile has been able to soften the downturn by using copper revenues saved during a previous copper price boom. This policy of saving for a rainy day is governed by a set of rules that dictates the government can only run a deficit larger than the target if output falls short of potential, in a recession, or the price of copper is below its medium-term (10-year) equilibrium. Two panels of experts are chosen to biannually evaluate these two respective conditions. Therefore, if it is determined that copper prices are

experiencing a temporary spike, then these extra earnings are required to be transferred to savings. Savings earned from the copper boom in 2003-2008 allowed a substantial fiscal easing in the recession of 2008-09, when the stimulus was most sorely needed (Frankel, 2010).

Azerbaijan has thus far implemented a fiscal strategy that has increased short-term expenditures of oil revenues for infrastructure and other state projects. Two other nations that similarly received large increases in new oil revenues are the experiences of Saudi Arabia and Nigeria in the 1970s and 1980s. Koeda and Kramarenko (2008) report that oil exports increased from US$3 billion in 1970 to US$100 billion in 1980 in Saudia Arabia and from US$0.6 billion in 1970 to US$25 billion in 1978 in Nigeria. Saudi Arabia spent massive amounts of oil revenues on infrastructure projects and welfare programs, while at the same time it liberalized its trade structure. This policy allowed the non-oil GDP sector to develop at outstanding rates. Nigeria also made large expenditure increases, but poorly managed its oil boom by creating unsustainable wage increases that further intensified the effects of Dutch disease on the agricultural economy. The decrease of world oil prices in the early 1980s forced both economies to make expenditure cuts that severely decreased non-oil GDP growth in Saudia Arabia and led Nigeria to even a deeper recession. This experience shows that even when modern infrastructure is built, the non-oil sector is still highly affected by a decrease in oil revenues and expenditures. This would suggest that in addition to trade liberalization, a country must prepare for unpredictable changes in oil prices and provide for a long-term, sustainable fiscal policy (Koeda and Kramarenko 2008).

In this section, we have looked at natural resource management strategies in Norway, Alaska, Sao Tome and Principe, Chile, Nigeria, and Saudi Arabia. Given this information, it is recommended that Azerbaijan avoid the pitfalls of a country such as Nigeria by implementing a combination of the best international practices. In Azerbaijan's case, we recommend that it follow Norway's lead in creating a fund of all oil revenues to be held abroad and sterilized from the economy. It is also recommended to

follow similar investment and ethical practices of Norway. However, as far as spending the revenues, we recommend that Azerbaijan use a version of the Permanent Income Hypothesis method that is implemented in Sao Tome and Principe. It is also vital to set similar legal restrictions on the limits of what can be transferred from the fund to the state budget. This will allow for predictable annual revenue transfers that will help Azerbaijan avoid the negative consequences of procyclical spending present in times of temporary spikes in oil prices. Finally, given the knowledge of annual oil revenue transfer limits, Azerbaijan could follow a more sustainable version of Saudi Arabia's push for infrastructure and development of the non-oil economy. There are many lessons for Azerbaijan to learn from the experience of other resource-rich countries. The final policy recommendations will be further explored later in this paper.

IX. MACROECONOMIC CONSIDERATIONS

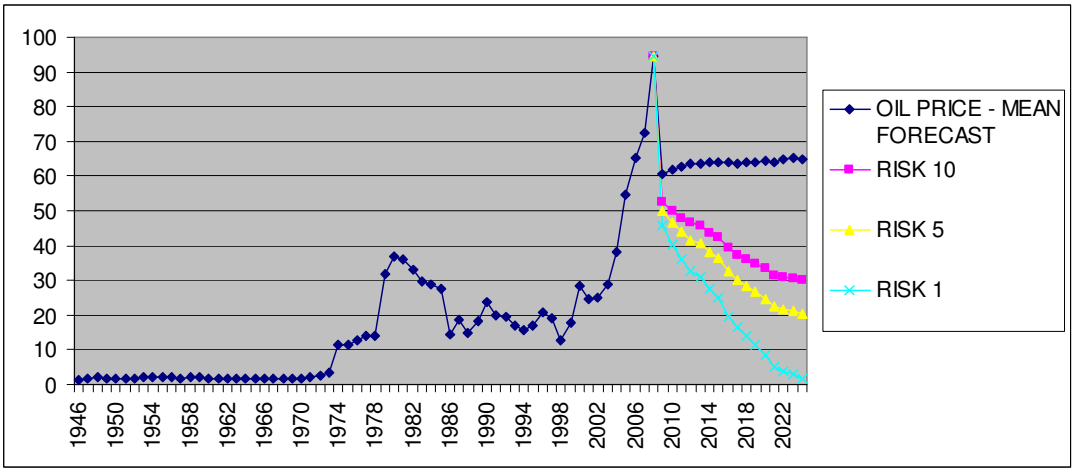
A. Macroeconomic Cost of Fiscal Volatility

The return on most financial assets is not known with certainty at the time of purchase, thus the return can be treated as a random variable that varies according to a statistical distribution, often a normal distribution. While it is important to conduct financial analysis with respect to the mean values of the distribution, it is also important to take into account the variation, and particularly, the minimum values (the lower tail) of the distribution. This is done by examining the historical data for the mean, variance, covariances, if any, and the time structure of the random variable. The approach of this study is to examine the statistical time structure of the oil price data.[3] That structure can then be exploited in the determination of the means, variances and lower tails of the distributions. The oil price data, given in Figure 3 below is annual, from 1946 to 2009 inclusive.[4] The series is based on the price of Saudi Ras Tanura light from 1946 to 1975

[3] No attempt is made to model the structure of the world oil market, which goes far beyond the scope of this work.
[4] Similar analysis has been conducted with monthly data over the same period. The results are not appreciably different.

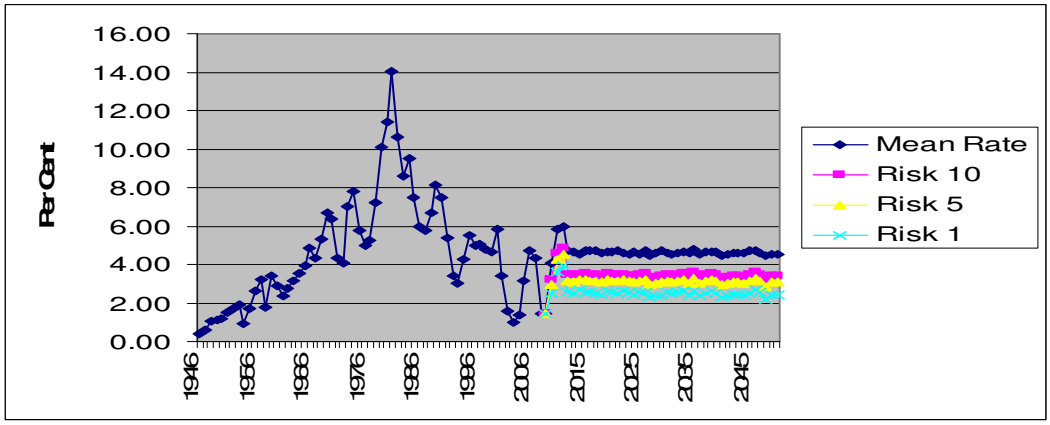
and Brent thereafter. The 2008 data point was determined based on estimated values for the last two months. Clearly, oil prices have fallen significantly, and are at the time of writing between US$40 and $45 per barrel.

Figure 3: The Oil Price Data and Projections



Source: BP World Outlook 2009

Figure 4: SOFAZ main investment - US T-Bill rate projections



Source: SOFAZ 2009

These oil price and financial return projections are then fed into the SOFAZ financial model, which essentially gives the amount of oil expected to be produced, derives the netback by subtracting the cost of production, and adds the financial return. In all cases it is assumed that oil will cease to flow by 2025. This yields the financial

results. All results are in nominal US dollars, and inflation in either the US or Azerbaijan is not considered. (See Figure 4)

B. Medium-Term Budgeting

The IMF advises the government of Azerbaijan to prepare the annual budget spending plans of the various ministries in the context of a detailed medium-term expenditure framework, particularly for multi-year investment programs. These should be fully disclosed in the budget document submitted to the Parliament. There is still some room to enhance the budgeting, especially at the regional level and line ministries. At the national level, budget departments collect budgets of local/regional departments and total them in an overall budget, a practice that disallows the geographic origin of a budget item. Medium-term budgeting is applied, but in most cases it is not based on actual plans, policy and accompanied with clear justification, but on copying annual columns of values to the other years. An IMF mission in December of 2008 welcomed the adoption of the decree to establish clear rules for the selection, execution, monitoring and auditing of public investment projects, and looked forward to the new guidelines being finalized before mid-year. During the time of this mission the new guidelines were still not finalized.

C. Long-Run Fiscal Stance

Currently the State Oil Fund of Azerbaijan (SOFAZ) is under a great deal of pressure. The transfers from SOFAZ to the State Budget have shot up from US$686 million in 2007 to US$4.713 billion in 2008 and a decision has been taken to further raise the transfer to US$6.144 billion in 2009. These levels might well be inconsistent with the objective of SOFAZ to preserve oil revenues for future generations. What is the policy framework that allows these rapid increases in withdrawals? There are Presidential Decrees that determine that the concept of “Permanent Income” will be used. That is, during the years of rapid oil exploitation substantial oil revenues will be

saved internationally in assets denominated in foreign currencies in order to generate a financial return that can be used indefinitely.

The technical challenge is to create the scheme such that the amounts withdrawn during the resource exploitation phase and the post-resource financial return phase are the same. However, the details of the Permanent Income scheme have not yet been worked out and agreed to and it has not been implemented. Thus, the pressure on SOFAZ to relinquish funds continues and intensifies. One of the difficult elements of the Permanent Income approach is that in order to determine the current levels of withdrawals, the value of the stock of oil in the ground must be known, and therefore knowledge of the future profile of oil prices until the resource is exhausted is necessary. To date, this calculation has been based on "expected" or historical averages of oil prices, and several scenarios have been posited.

As the recent past has shown, oil prices can be extremely volatile and relatively unpredictable. Thus, while considering average or expected oil prices is not unreasonable, it is only a starting point. Another difficulty of the Permanent Income approach is that it is inherently unstable because of the volatility of oil prices. That is, if the withdrawal amounts are set too high, and that amount is kept up, the oil fund will be exhausted. This is a very realistic possibility since future oil prices are not known, and some sort of projection is required up front. Given the volatility and uncertainty of future oil prices, it is almost inevitable that this projection will be wrong. Thus, to avoid this outcome, the withdrawal amounts should be set in a sufficiently conservative manner or regularly reset.

Different annual withdrawal schemes can be considered, for example:

1. No withdrawals from SOFAZ**.** This is not only unlikely to happen, but also undesirable. Oil revenues have to benefit the people and not just stay there and grow. But this scenario can be explored to highlight the magnitude of the resource, and how much is lost through mismanaging it.

2. Withdrawal only for government investments such as infrastructure, and no oil money to be used for government consumption, and based on cost-benefit analysis techniques. Money can be withdrawn as long as there is a project to be undertaken that yields positive benefits.
3. Withdrawals only for crediting entrepreunership and supply for export and domestic consumption. Here the rule is to support the entrepreunership as much as there is a need for that, and as much as that yields the Fund the benefits no less than the benefits from investments in foreign assets or in-country infrastructure constructions.
4. Constant withdrawals. E.g. the transfer of the 2010 amount, US$6.125 billion in every year can be maintained. The result is likely to be extinguishing the fund (if that amount is more than the amount for PI), or permanent growth of it (if that amount is less than the amount for PI).
5. Maintaining trend in withdrawal. Withdrawals can increase in continued declining rates, to reach certain level (e.g. US$8.5 billion), at which the increase in withdrawals will stop.
6. Lnking withdrawals to financial return from maintaining the assets. This involves only withdrawing the whole or percentage of financial return from managing SOFAZ portfolio. In case of withdrawing the whole return, the SOFAZ acts as an endowment in perpetuity. Returns to that however will vary over years.
7. Lnking withdrawals to the amount of assets. This resembles the Norwegian model.
8. Permanent Income. Here some funds can even be borrowed earlier, the expense of future benefits to smooth the consumption.

1. Permanent Income

The main idea behind the the concept of “Permanent Income” (PI) is the saving most of oil and gas revenues during the years of rapid oil and gas exploitation in such a

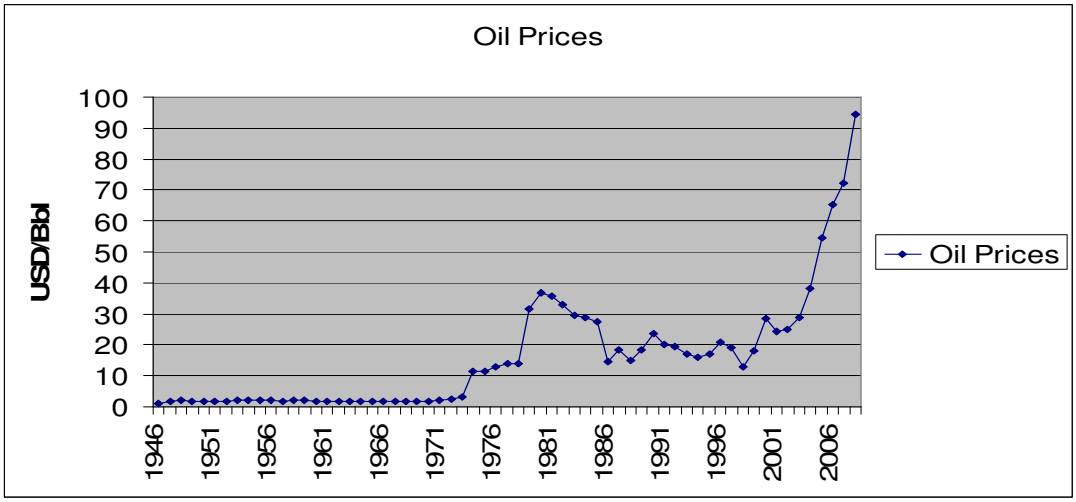
way that it will generate financial returns during indefinite years in the future. Here the yearly amounts to be withdrawn are assumed to be the same both during the oil and gas exploitation phase and after that. Most of savings are often conducted in assets denominated in foreign currencies. Return on investments are not regarded as absolute number and answer to the equation, and by the same token, PI however does not regard annual amounts to be set once and for all. The answer is a statistical distribution, more likely to be a normal distribution. Here, the financial analysis should focus not only on the mean values of the distribution, but also and more importantly look at the minimum values (the lower tail) of the distribution for annual amounts to be withdrawn from the fund. This point is very important in PI analysis, since it is about the decision on the whole fund for the whole country, rather than on individual investment of its multiple assets diversified among the investment options. The mean points make more sense then, where the deviations from those points for every investment are likely to offset each other.

Here we try to assess schemes and give recommendations for annual withdrawals of SOFAZ assets using the above mentioned PI principle, and highlight the major risks and possible solutions. There are Presidential Decrees in Azerbaijan indicating the concept of “Permanent Income” to be used, but that needs some technocratic work to be done to develop a scheme of expected revenues and recommended expenditures to maintain the above principle. Such a work detaling that saving and withdrawing scheme has not yet been done, at least to the level of being publicized and agreed.

Meanwhile, SOFAZ is transferring money into the budget and directly to projects and programs, and cannot perform its central function. There are some challenges in front of the PI model to be developed, agreed to and implemented. One is the difficulty in future revenue estimations due to the high volatility and uncertainty of oil prices. The problem is that the yearly withdrawal amounts are linked to future oil revenues through the PI model, and that amount can be set too high and therefore exhaust SOFAZ if the

future prices become lower than estimated. Calculations are often based on historical averages or expected oil prices, but what we have learned from the recent past is that the prices can be highly unpredictable, and that way of estimation of oil prices is full of huge risks. Below is the yearly average oil price, but with spikes within almost every year, the prices are more volatile than it is shown in the Figure 5.

Figure 5: Yearly Average Oil Price 1946-2009

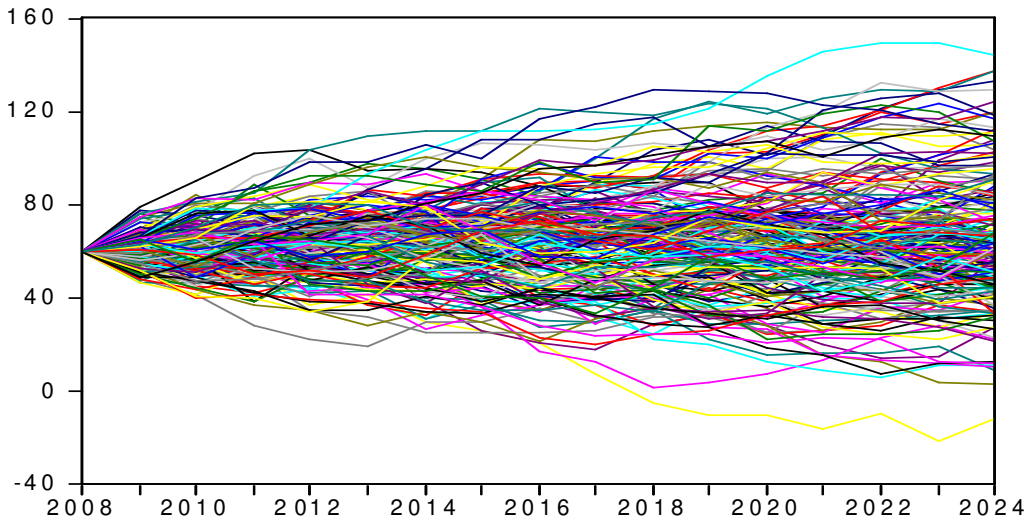


Source: BP World Outlook 2009

So the analysis of the trends in the recent period may be misleading. The prices may change due to the changing world politics, technologies of oil extraction and production of its substitutes, demand and other factors. One of the possible safeguards is setting annual withdrawal amounts at conservative rates. Other possible remedies are allowing a safety margin in future oil prices, regular check-up of the model to adjust for changing data in oil prices, and the amount left in the Fund and the efficiency gains or

losses in managing that amount through investing in domestic and foreign economies. The last factor is another challenge for the PI model, and the model therefore needs to be regularly checked and adjusted to new data related to that factor. Another difficulty with the model is uncertainties related to the stock of oil and gas left unexplored or unproduced in the ground. Besides, the scheme of future oil and gas productions also affect the annual amount to be withdrawn, not only because of oil price volatility, but also because of investment options and revenue generations from the capitals to be accumulated in the Fund.

Figure 6: Future Oil Price Predictions, USD



Source: PI Model

As said above (See Figure 6), we will employ statistical analysis to get the distribution related to input variables such as changing oil prices. We are interested in means, standard deviations and lower tails (conservative approach) in those distributions. Oil prices in our analysis are indicated in US$, the major currency now in

the oil market. The analysis may take different shape and lead to slightly different resultds for other currencies.

X. INVESTMENT POLICY OF THE STATE OIL FUND OF THE AZERBAIJAN REPUBLIC

The financial assets of the State Oil Fund are managed in accordance with the "Rules on the Maintaining, Investing and Managing of Financial Assets of the State Oil Fund of the Azerbaijan Republic". Under the Rules, the Fund's partners can be the financial institutions having a credit rating that is not lower than investment credit ratings for long-term debts. Additionally, the maximum weight of it is at 15% level of the total value of the whole portfolio. Moreover, according to the Rules a part of the Fund's financial assets (minimum AZN 30 million (US$37.78 million) – maximum 60% of total portfolio) can be given to foreign managers to manage. It should also be stated that it is not permitted to include derivative financial tools (swaps, futures, forward relations, etc.) and to invest in valuable metals and real estate. A review of these Rules proves that the Fund maintains conservative investment policy and focuses mainly on minimizing risks. As it is known, since risks and expected profitability are correlated, such a case adversely affects the profitability of the fund.

The development of the Fund's annual budget is regulated with the "Rules on Developing and Performing the Annual Revenue and Expenditure Program of the State Oil Fund of the Azerbaijan Republic". The Rules determines the structure of the Fund's budget, its revenue and expenditures items as well as their sources. The Rules define standard procedures regarding developing, approving and performing the Fund's budget, the division of responsibilities among relevant bodies regarding thereon, control and accountability mechanisms. The document also determines the structure of the Fund's budget, its revenue and expenditure items and their sources. Thus, this document interprets the development characteristics of revenue items of the Fund's budget regarding the revenues from the conduct of oil contracts and managing the

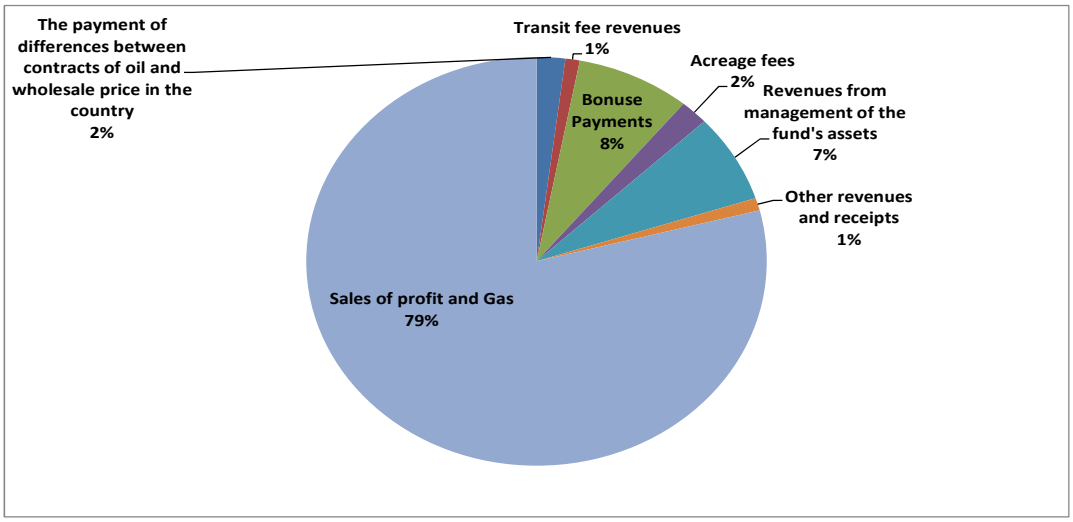
Fund's financial assets. Additionally, the document classifies the expenditure items of the Fund's budget and reflects the major principles of their development and performance. The following tables describe the Fund's actual revenue and expenditure for separate items during 2001-2008. While reviewing the increasing dynamics of the budget revenues and expenditures of the Fund's budget during these years, i.e. during its functioning, a sharp difference between the two can be evidently observed. That is, the budget revenues of the Fund increased from 221,998.7 thousand AZN (US$279,560.1 thousand) in 2001 to 11,864,700 thousand AZN ($US14,941,065 thousand) (53 times more), while the budget expenditures raised from 811.98 thousand AZN (US$1,022.52 thousand) to 4,291,800 thousand AZN (US$5,404,608) (5,285 times more) during the concerning period. The revenues earned from the sales of profit oil contain the largest share in the Fund's total budget revenues. Thus, the revenues earned from the sales of profit oil contain, on average, 79% of the Fund's total revenues. The second larger portion of the revenues contains bonus payments. Bonus payments are fees paid by the foreign oil companies to the Azerbaijan Republic in account of gaining the rights to develop oil fields. The amounts of bonus payments are varied across the years. For instance, the bonus payments in 2003 and 2004, as well as 2007 and 2008 can be shown as examples. In general, bonus payments contain on average 8% of the Fund's budget revenues. The revenues from the management of financial assets contained 7% of the total revenues during these years. It should also be added that first dividends were paid to the Fund on the Baku-Tbilisi-Ceyhan project in 2008.

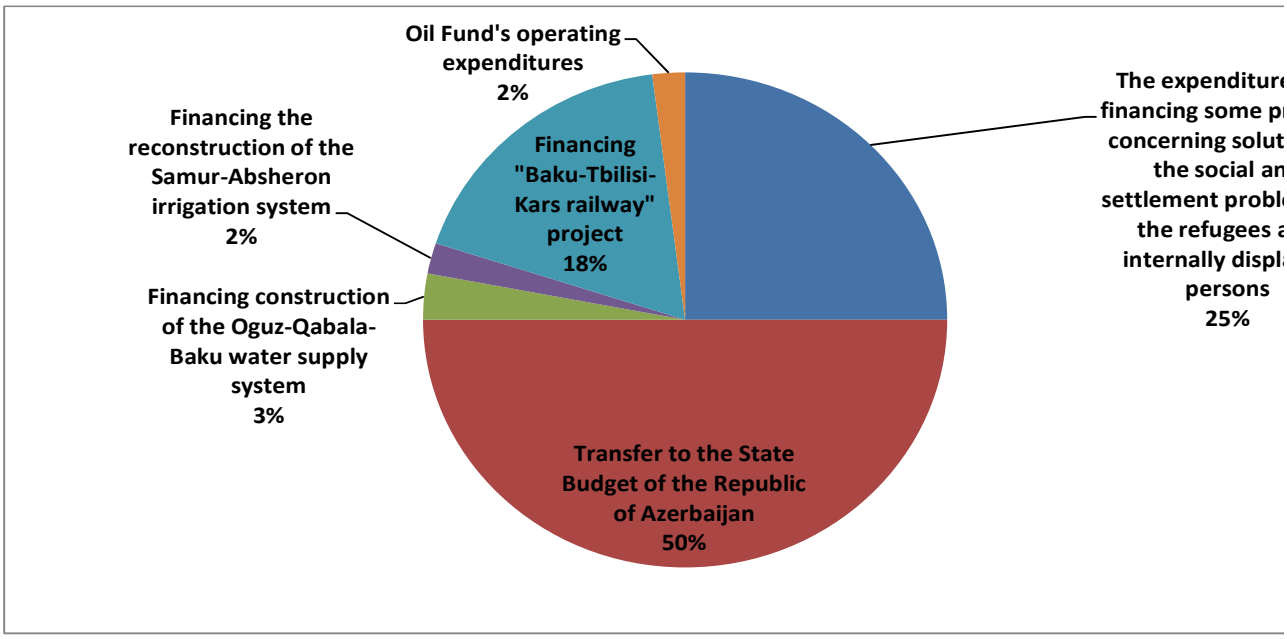
The review of the Fund's expenditure structure proves that the largest share of expenditures contain transfers to the state budget. Thus, these expenditures contain around 50% of the budget expenditures during the period of the Fund's functioning. The other direction is the expenditures to finance some activities regarding the social-living and accommodation issues of refugees and internally displaced people. As the graph describes, such expenditures contain 25% of the Fund's total budget expenditures. 297,869 thousand AZN (US$375,103 thousand) was allocated for the Baku-Tbilisi-

Ceyhan project during 2002-2006, which contains 18% of the Fund's budget expenditures during 2001-2008.

Other infrastructure projects and the Fund's administrative expenditures contain 5% and 2% respectively. It should be noted that total budget revenues have been 16,594,346.8 thousand AZN (US$20,897,049.2 thousand) during the Fund's functioning period, 7,054,514.7 thousand AZN (US$8,883,660.4 thousand) or 42% of which were spent to finance various infrastructure, social and other projects. It should be noted that the continuation of such a trend is also observed while reviewing the budget approved with the Presidential decree dated February 26, 2009. Hence, the Fund's revenues and expenditures for 2009 are estimated to be 8,361,016.3 thousand AZN (US$10,528,921 thousand) and 5,319,534.9 thousand AZN (US$6,698,822.4 thousand) respectively. (See Figures 7 and 8)

Figures 7 and 8: SOFAZ Budget revenues and expenditures





Source: SOFAZ, 2010

It is forecasted that most of the revenues (96%) will be ensured from the sales of profit oil and only a small portion (2.5%) will be received from the management of financial assets. It is expected to receive 150.784 million AZN (US$189.88 million) (dividends from the Baku-Tbilisi-Ceyhan project. Regarding the budget expenditures, transfers to the state budget are expected to contain most part of the total expenditures: 4,915 million AZN (US$6,189.4 million). Social expenditures, the expenditures allocated to finance infrastructure projects and administrative expenses are forecasted to be 290 million AZN (US$365.2 million), 90 million AZN (US$113.3 million) and 24.535 million AZN (US$30.9 million) respectively. The assignment of expenditures stipulates that social expenditures contain another larger share of the total expenditures after transfers to the state budget. That's around 523 million AZN (US$658.6 million) was spent to improve social-living status and to solve accommodation problems of refugees and internally displaced people, which is considered a social-oriented project.

Of course, it is possible to come across international experience to spend oil revenues for social purposes, while the experience of the leading oil-producing

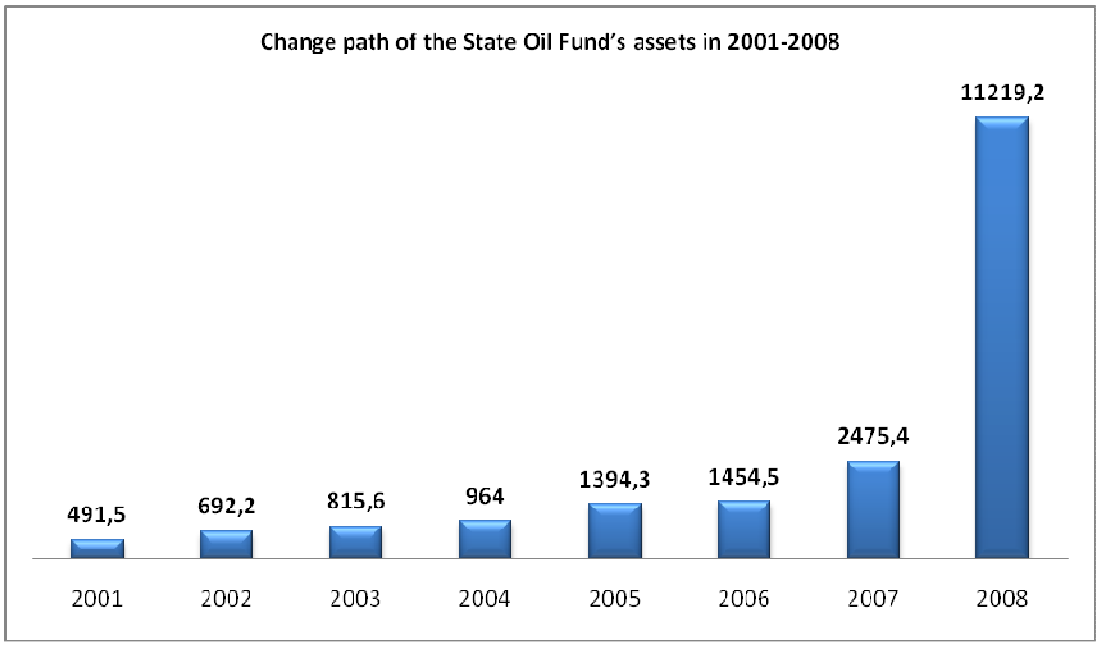
countries, particularly that of Norway, shows that such a spending is not so desirable. Ulrich F.W. Ernst, an expert on oil issues, states that it has few sustainable positive effects to spend oil revenues for social projects: “Therefore, it is more reasonable to direct revenues from natural resources to such areas with long-term dividends.” Additionally, the experience of OPEC countries shows that allocating expenditures to social sectors are of political character. Therefore, such expenditures are usually characterized with a lower economic effectiveness. Experience also shows that oil booms can have temporary effects in some cases. For instance, Nigeria, whose budget expenditures increased by 70%, experienced 3% decline, or this indicator was 112.5% in Saudi Arabia, who experienced a significant decline to 30%. Norway, however, did not experience such a sharp decline. The increase here did not exceed 30 percent during the oil boom. Therefore, Norway could maintain 17.2% growth at the next stages. These figures prove that a sharp increase in the state budget expenditures during the oil boom could be accompanied with a significant decline afterwards. That can consequently harm sustainable development seriously and lead to considerable social problems.

The major concerning aspect during the operation of the Oil Fund is the growing tendency in transfers to the state budget. 58.78% of the Fund’s revenues are expected to be transferred to the state budget in 2009, which, according to experts, means that there are no defined criteria for transfers from the Fund to the state budget. It is very necessary to limit the amounts of transfers from the Oil Fund to the state budget and to sterilize these amounts. In order to completely sterilize the Norwegian economy from oil revenues, the financial assets of the Fund are invested abroad. The exchange rates between the crown, Norway’s national currency, and other European currencies, particularly the EURO, are maintained stable more on account of economic factors rather than monetary policy. It is needed to adjust such a policy to the case of Azerbaijan. It cannot be considered an effective way to spend the Oil Fund’s financial assets to current projects through the state budget. The share of the oil sector in the state budget was 51.4%, while this indicator rose to 58.4% in 2006. This figure reached

60% during the last two years. Evidently, the oil sector covers around 2/3 of the state budget revenues. First, on average 46.69% of the Fund's revenues during 2001-2008 were spent to finance national projects, which is unacceptable. The question is that this can lead to spend larger shares of oil revenues during the period of revenue flow. Consequently, the spending of oil revenues at this rate can lead to the failure of future generations to benefit from oil revenues. Considering oil as a natural resource and the experience of the other oil producing countries, it is necessary to apply annual thresholds to the amounts allocated from the Fund. This means that the oil sector still maintains dominance in the state budget revenues and that the state budget continues to be highly dependent on oil. In fact, this can be raised as a serious problem. The question is that some countries (e.g. Norway) set a specified threshold on transfers from oil revenues to the state budget, while some countries (e.g. Nigeria) apply no thresholds on the whole. Some countries (e.g. Russia) however attempt to limit the amounts of transfers, despite applying no thresholds. Here it is the major aim to eliminate the dependency of the state budget on the oil sector because the state budget directly depends on the changes in the world oil prices if such a dependency is high. Increasing dependency leads to the growing role of external factors rather than internal in the formulation of the state budget. Second, the character of the projects to be financed proves that there are no criteria set to spend financial assets. In fact, financial allocations are made to various directions without any reliable justifications.

As the graph describes, the amounts of the State Oil Fund's financial assets continuously increased, excluding 2006. According to the recent announcements by the Fund, financial assets of the Fund were 8,986.7 million AZN (US$11,316.84 million), which means a 20 times increase in the financial assets of the Fund during 2001-2008. The analysis of the sources of the growth of the Fund's financial assets clearly shows that revenues from the operation of the oil-gas contracts contain a larger part of this increase. (See Figure 9)

Figure 9: Change path of the State Oil Fund's assets in 2001-2008



Source; SOFAZ, 2010

Revenues from the management of financial assets contain only a small share in total revenues. Thus, this share is 7% in total expenditures of the Fund during 2001-2008. It should be mentioned that revenues from the management of the Fund's financial assets include revenues from interest payments, dividends, re-evaluation of currency assets and others. The analysis of the investment activities of the State Oil Fund shows that financial assets are invested mainly in 3 directions. That is, main investment directions include liquid assets (money market funds, deposits and bank accounts), securities (bonds, equities etc.) and financial assets given to foreign managers for management. Moreover, the Fund invested in SPDR TRUST commercial exchange fund in 2003, and equities were also included in the Fund's investment portfolio beginning from 2004.

As described, liquid assets included in the the Fund's investment portfolio are money market funds, deposits and bank accounts. Money market funds are those

making investments on financial tools with lower risks. The investments made to such kinds of funds include equities reimbursed on the basis of demand. Investments made to money market funds can easily be changed into money. Such funds allocate their investments in debt and debt related tools with a shorter maturity, such as securities, certificates of deposit, bonds with changing interest rates, US bonds, Euro bonds, or equities. Interests and dividends to be paid to the Fund are re-invested. The money market funds and the amount of investments by the State Oil Fund during 2004-2007 are given in the table below.

The investment ratings of the money market funds, excluding Wachovia STIF Liquidity Funds, invested by the Fund are rated at AAA. Among the Fund's liquid assets for 2001-2007, the average weight of the investments made in money market funds is 25%. Based on the estimations, the Fund put around 49% of investments made to liquid assets during 2001-2007 in various banks with investment ratings. For instance, the Fund established partnership with Societe Generale, Deutsche Bank, BNP Paribas, Credit Swiss and UBS AG in 2007.

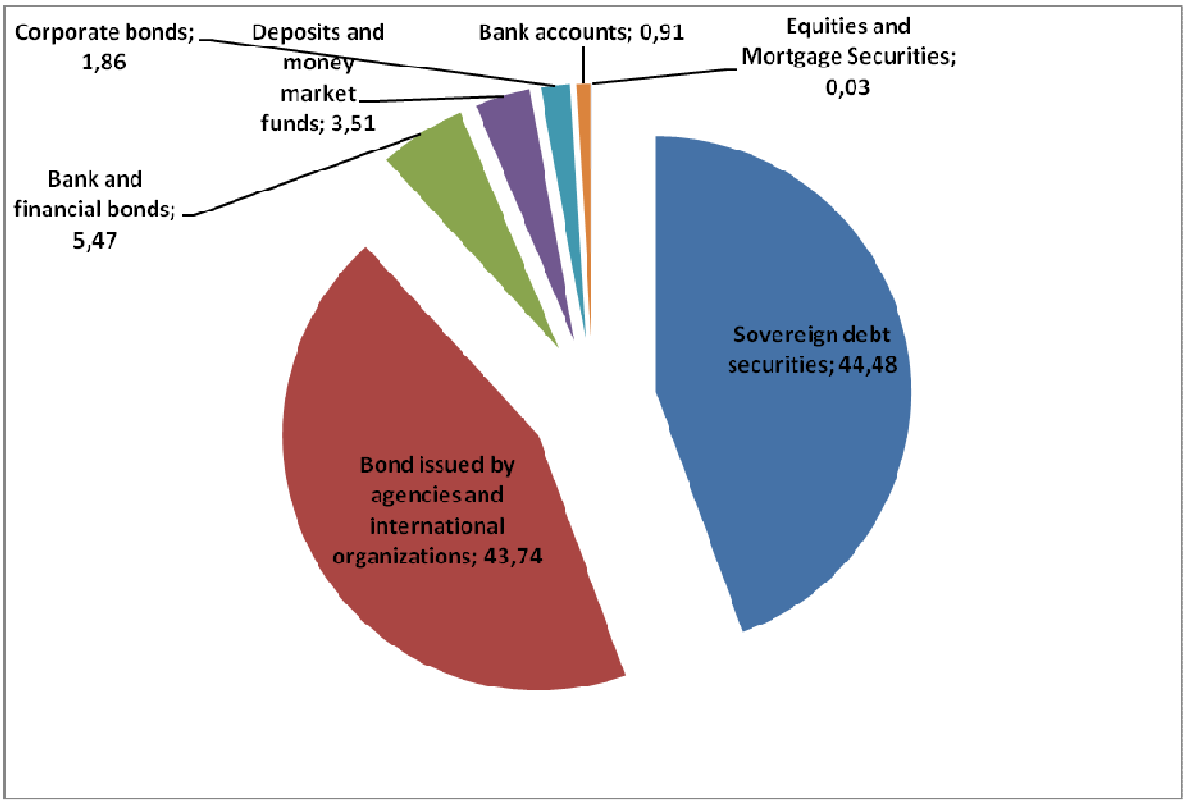
The recently observed trend in the management of the Fund's investment portfolio with liquid assets is that the amount of investments put by the Fund to such kinds of financial tools has sharply declined. For instance, in 2006 the total amount of the portfolio declined by around 11 times compared to the previous year.

As indicated above, another direction of investments by the State Oil Fund is securities. Securities invested in include bonds issued by financial institutions and agencies, corporate bonds and equities, sovereign debt securities, etc. Almost the entire securities portfolio is consisted of bonds, while equities take only a small portion. Thus, the average weight of equities in total value of the investments to securities declined from 2.78% to 0.12% during 2004-2007. The amount of investments directed to securities increased from 128,866 AZN (US$162,279) in 2002 to 1,776.219 thousand AZN (US$2,236.77 thousand) in 2007. The investments made to bonds of the financial institutions of European, Asian and American countries take the largest share in the total

investments made to securities. The second largest group in the portfolio was the bonds issued by various agencies, particularly Fannie Mae, Freddie Mac and Federal Home Loan Banks. Moreover, excluding 2005 and 2006 years, the investments made to bonds issued by various sovereign and international institutions of European, Asian, African and American countries take a significant share in total investments made to securities by the Fund. Corporate securities include investments made to bonds issued by Brystol-Myers Squibb, Morgan Stanley, Eli & Lilly Co and other European and American companies. The graph describes the structure of the Fund's securities portfolio during 2001-2007 and the average weight of each kind of securities in the portfolio during the concerning period. (See Figure 10)

The structure of the investment portfolio of the State Oil Fund during 2001-2007 is as follows:

Figure 10: Structure and Distribution of Fund's securities portfolio 2001-2007



Source; SOFAZ, 2009

As the Table indicates, the Fund kept a large part of its financial capital in liquid assets. That is, the amounts made to money market funds, deposits and bank accounts contained on average 78.16% of the total portfolio during the concerning period. However, the weight of liquid assets in the total portfolio rapidly declined to 5.52% in 2006, while the investments directed to securities continuously increased and became 84.87% in 2007.

The distribution of the Fund's assets by maturity proves that the Fund maintains such a policy of keeping the liquidity of a larger share of its assets. This tendency was very characteristic of the Fund's activities, particularly for the first years. During 2001-2007, the share of assets with 0 through 1-year maturity was on average 54.63%, with 1 through 3 years' maturity - 20.25%, with 3 through 5 years' maturity 14.63%, with 5 through 7 years' maturity 2.37% and with more than 7 years' maturity 1.1%. This policy is justified with the diversification of financial assets. Thus, the Fund informs that it is

necessary to keep the investment portfolio in a more liquid situation and to avoid long-term investments in order to change the content of financial assets of the investment portfolio. However, new trends are observed in the asset distribution by maturity in recent years. That is, the weight of financial assets with 0 through 1 year maturity decreased from 74.6% to 24.8%, while that of financial assets with 1 through 5 years' maturity increased from 13.1% to 43.3% during 2005-2007.

Larger shares of financial assets of the State Oil Fund are indicated with Azerbaijani manat, the US dollar, Euro and Great Britain pound. It should be mentioned that although 2006 and 2007 years are characterized with a strong market position for the Euro, a decreasing tendency has been observed in the Fund's Euro portfolio. Losses and profits as a result of re-evaluating financial assets are described in the following graph. As it is seen, the Fund obtained profits at the amount of 14 million AZN (US$17.63 million) as a result of re-evaluating its financial assets during the first three years of its activity. Nevertheless, the Fund experienced losses at the amount of 36 million AZN (US$45.33 million) in 2004-2006 and a record loss at the amount of 652 million AZN (US$821 million) in 2008. The reason for this was the depreciation of the dollar against the manat. In 2007, a 2.99% depreciation of the dollar against the manat was compensated with an 8.53% appreciation of the euro against the manat and the re-evaluation of financial assets consequently led to gaining revenue at the amount of 14 million AZN (US$17.63 million).

As we mentioned, revenues from the management of the Fund's financial assets include revenues from interest, dividends, re-evaluation of financial assets and others. The following graphs indicate the amount of revenues and assets gained by the Fund through investment activities during 2001-2008. The ratio of revenues from investment activities to financial assets was 3.67% on average.

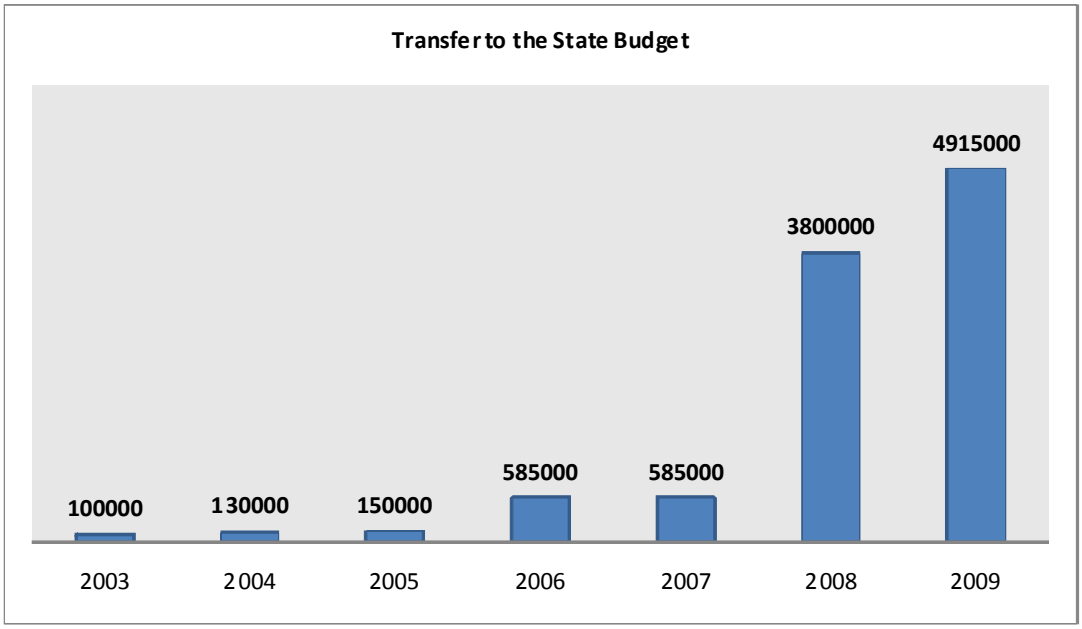
As it is seen, the profitability during the first years of the Fund's functioning was quite low, which, to our mind, can be related with the conservative policy made. The transfer of the Funds financial assets from the assets with higher liquidity to securities in

2006 has had a positive impact on profitability and the Fund showed considerable results during the concerning period. However, the real profitability of the Fund's activities during the recent years has been very low: 1.44%. At the same time, it is possible to observe very low net real profitability if the Fund's management expenditures are taken into account. For an example, we can mention that the profitability of the Norwegian State Pension Fund- Global was 3.22% during 2001-2007.

We believe that the State Oil Fund should benefit from the international experience and apply that in its practice in order to achieve a more effective management and consequently, higher profitability. In general, some funds put investments only to financial assets rated in stock exchanges, some to all financial tools including alternative investments. In addition, some funds determine the threshold from any corporations in order to achieve the desirable diversification. Others acquire more equities in any corporation for the purposes of increasing profitability in the long-run. Naturally, that happens only when the fund's managers expect higher profitability from such investment. Nevertheless, experience proves that such funds do not attempt to influence the decisions of the companies in which they are shareholders, and to play a role as passive investors. It should also be mentioned that some funds added certain ethical rules to their investment-making criteria, which stipulates prohibitions for funds to make investments in industries (tobacco, weapons, etc.) contrasting with social and ethical objectives of their governments. Globally applicable experience contains the involvement of foreign managers to manage such funds. Excluding some funds that have already built own capacity and competent staff not lagging behind professional investment managers, most funds involve foreign managers to manage assets in areas with lower management capacity. In our opinion, as it is a newly established organization, SOFAZ should involve foreign managers to conduct management on some investment types and gradually build its own capacity (human resources with high professionalism, effective management system, etc.). As it is previously stated, SOFAZ should study international experience and apply in its activities, for which the Norwegian

Oil Fund[5] could be a good example. Hence, the Norwegian Pension Fund – Global has several characteristics that could be an example for other funds.

Figure 11:Azerbaijan Transfers (AZN[6]) from Fund to State Budget 2003-2009

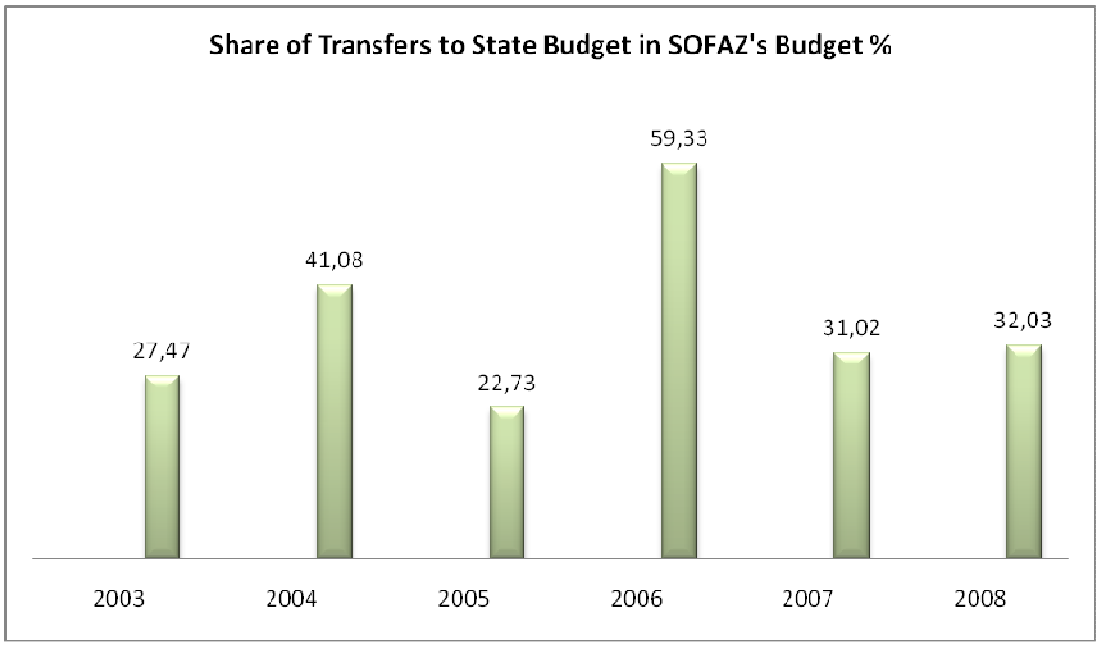


Source: SOFAZ 2010

It should also be mentioned that the amount of the Fund's financial assets has significantly increased since the first transfer at the amount of US$400 million in 1996 and took its place in the world as one of the biggest and fastest-growing funds with financial assets at the amount of US$373 billion in 2007. However, this Fund is famous more for applying internationally-known best practices rather than the amounts of its financial assets. The Fund aims to collect oil revenues and ensure intergenerational transfer. The Fund is also used as a fiscal tool. In other words, the Norwegian government applies a threshold to the amounts of transfers from the Fund to the state budget.

[5] The Norwegian Oil Fund was renamed the "Norwegian State Pension Fund - Global".
[6] USD1=AZN.7941 as of 28 February 2011

Figure 12: Percentage Share of Transfers (AZN[7]) to State Budget in SOFAZ's Budget



Source; SOFAZ, 2010

The rules approved in 2001 set the limits to non-oil budget deficit at 4% of the NPF's financial assets, which means that the amount of transfers to cover annual non-oil budget deficit cannot be higher than the set threshold. An interesting fact is that the Fund's real profitability is expected to be 4% in the long-run, which means that the government maintains the Fund's real capital and spends only the revenues from its management. The basis of this approach is that oil revenues can be spent only once, while revenues from their management can be spent forever. The following graph clearly indicates how the Norwegian government transforms unstable and changing cash flows into stable spending in the long-run as a result of the fiscal thresholds applied.

We believe the Oil Fund needs improvements, including but not limited to those listed below, in some areas of action:

[7] USD1=AZN.7941 as of 28 February 2011

- ✓ to develop a long-term investment strategy which shall include the size of assets to impact each asset type as well as their geographical distribution. Namely, it is necessary to define a strategy benchmark portfolio. Notably, the existing Investment Policy fails to reflect the mentioned criteria.
- ✓ It should be mentioned that the current Investment guide fails to provide the stated divisions. Moreover, in addition to securities with lower risks and higher liquidity, the weights of corporate yields and bonds should be increased in the Fund's investment portfolio in order to improve the profitability of the Fund's investment portfolio. Despite the fact that equity portfolio has higher risks, that can considerably impact on the Fund's profitability in the long-term perspective. At present, investments are made to purchase securities abroad, particularly US securities. The rate of profitability of these securities is low enough.
- ✓ Relationships between the State Budget and the State Oil Fund should be reviewed again. In general, one of the most debatable topics in oil-rich countries is the relationship between oil revenues and the state budget. The following diagrams describe the amounts of transfers from the Fund to the state budget and the share of these transfers in the Fund's total revenues during 2003-2008.
- ✓ The directions of allocations show that social expenditures gain priority after the transfers to the state budget. Although it is possible to find cases of using oil revenues for social purposes in international practice, the experience of the leading oil producing countries, particularly that of Norway, proves that spending revenues in such a way is not so desirable. That is, according to some experts, since spending oil revenues for social purposes is of lower sustainable positive effects, it is recommended to allocate these revenues more to such areas as making long-term dividends.
- ✓ It is desirable to include ethical principles in investment principles, as the Norwegian government does.

- ✓ In order to increase the profitability of investments, active investment policy should be made through regularly analyzing the situation in financial markets.
- ✓ The losses the Fund faced during the re-valuation of its currency assets urge to apply flexible currency policy. It should be reminded that the Fund was exposed to a 650 million AZN (US$818.54 million) loss as a result of the currency changes in 2008.
- ✓ To minimize the inflation effects of the Funds financial assets and to protect the non-oil sector of economy, it is desirable to invest abroad at the initial stage.
- ✓ The dominance of lower risk bonds in the investment portfolio of the Fund in recent years proves passive management. However, the Fund can make higher results as a consequence of active management, as in the case of Norway. That is, the Norges Bank's analysis finds out that the increase in total risk of the portfolio is often lower than the increase in the expected profitability.
- ✓ The criteria to select the Fund's foreign partners should be specified. This is of great importance with regard to both the Fund's financial performance and prestige as an institutional investor. As an example it should be mentioned that the tax scandal between the US government and UBS AG, one of the major partners of the Fund had a significant impact on the financial situation of the institution. Moreover, UBS AG and Credit Swiss are among the banks affected by the financial crisis most. Hence, their net losses in 2008 were 13.09 and 5.45 billion euro respectively. Experts think that this financial crisis and some scandals harmed the image of the financial system of Switzerland. The net revenue of BNP Paribas, SOFAZ's French partner, decreased by 61% during the year. Additionally, the Fund involved three foreign managers to manage its financial assets. Here includes Clariden Leu, which is included in Credit Swiss group, Deutsche Asset Management, which is included in Deutsche Bank and World Bank. Based on the information as of the end of 2007, the share of

financial assets given for the management of the foreign managers contains 9.8% in the total portfolio of the Fund.

XI. POSSIBLE FUNCTIONS OF THE FUNDS

A. Budget or Fund

Meral Karan provides information on how to use SOFAZ resources by the state agencies, and treat it as a secondary state budget. But this will conflict with the mission and purpose of, and the benefit expected from the fund.[8] Let's look and compare the international experience first. The table below compares the growth of expenditures in several countries. "After the boom" is a relative terminology, since the countries in the list still produce oil, and here the boom referes to the rise in the production, but not to the production itself.

Figure 13: Average annual growth of budget expenditures

Country	Prior to the boom	Oil boom period	After the boom
Azerbaijan	12.9	46.2	-
Saudi Arabia	27.5	112.5	30
Nigeria	29.6	70	-3.0
Norway	12.7	32	17.2

***Source**: IMF. International Financial Statistics. 2006*

Governments increase their budget expenditures during the oil boom, but after the boom they are forced to tighten expenditures. To prevent this, the economy needs to be isolated from the short-term effects, such as oil production, and tied to the long-term benefits such as the income generated from investments. The fund may perform this function without losing any of the resources. This is not to say that the economy will

[8] Fighting the resource curse: The Azerbaijan response Meral Karan

be fully isolated from oil production, because many oil companies and their subcontractors operate and generate employment, taxes and other benefits only during the production period. Therefore the other newly emerged sources for the increase of the budget, separate from the oil rent, exist during the production, and there is little the government can do and no efficient mechanism in place to even and smooth those benefits through the upcoming years.

However, once the strategy of saving all oil rent money is adopted, the Oil Fund can become an instrument that will isolate and save the economy from the huge portion of the unevenly changing oil money (increasing, and then decreasing at the end of the oil production period), and provide the fiscal foundation for the sustainable growth. This will also save the economy from the deadweight losses associated with the inflation and non-sustainable development. Another argument for the sake of saving the oil money is the lack of the capacity of the ecoomy to efficiently consume the increasing revenues. The economy needs to develop the capacity for the efficient use of the resources. And this capacity of the government needs to be tied to the development of the non-oil sector, the Fund included, and be adequate with the development of the private sector, excluding the oil. The amount the government may withdraw from the Fund needs to also be correlated with the expected growth rate of the population, not to lessen the Fund resources per capita, and needs to account the overall inflation in the currencies invested. Once the strategy is designed with savings in mind it may limit the fund's potential for stabilization.

B. Saving or Stabilization

The traditional literature suggests that the budget in the oil-producing countries depends on the oil prices in the international market, thus the Oil Fund needs to include the stabilization function, i.e. filling the budget deficiencies in the recession years. This paper argues and takes as a basis for further analysis that (1) it is not the oil price but overall oil revenues that matter (the latter includes many other factors, including the

amount of oil production) for the decisions between the budget and the fund, and (2) it is not the budget but overall income that depends on oil revenues; budget often as a result of political processes and decisions are linked to short-time oil revenues, but the fund can eliminate that link and make it dependent on the long-term and secure incomes.

However, stabilization can be codeword for the short-term government to deploy the nations long-term resources. So, the entire functionality needs to be redefined. While the oil production brings enough income, the budget can be stabilized using the oil revenues (this will substantially decrease the inflow of oil money into the fund); and when the oil production is over, the economy will not depend that much on oil prices and the fund loses its stabilization function. But since the revenues go down all the time, the fund gets deployed and becomes a support mechanism. Taking into consideration the above arguments we recommend the growth portfolio management strategy with liquidity considerations in mind. Liquidity expectations cannot be more than the annual withdrawals for the budget purposes. And the withdrawals cannot be greater than the net income generated by the fund, and some more considerations we will discuss below.

This is to say that there is no need to have liquidity expectations greater than the portfolio growth rate. The considerations mentioned in the paragraph above are as below:

- The portfolio growth rate is expected to be over the inflation rate calculated using the several currencies. The expected growth rate needs to be established to safely account for the inflation rate.
- Another coefficient needs to be applied to the fund's expected growth to safely account the population growth rate, and to make sure that the saving per capita is not decreasing.

The rational in the ruling out the stabilization function as related to oil production is to provide the fund with a long-term mission and relevant strategy. The investment strategy for an Oil Fund can be further broken down into the investment strategies for a stabilization fund and for a saving fund. While the saving fund can be regarded and

managed as a growth portfolio, the investment strategy for a stabilization fund can in some ways be different from an investment strategy for a growth portfolio.

The overall investment strategy will depend on how much the Oil Fund is regarded as a stabilization fund, and how much as a saving fund. In other words, the overall strategy will depend on the share and the weight the government will assign to each function of the fund within its expected overall functionality. Kalyuzhnova, Yelena focuses more on the stabilizing role of the oil funds, and thus provides analyses and recommendations on how to protect the economy from the sharp changes in the oil prices(Kalyuzhnova 2006). She sees the role of oil "as formalizing--or giving institutional focus to--a set of fiscal rules." And evaluates the effectiveness of the fund as deriving from this role: how it reflects in the policy rules, and market expectations to buffer the economy from price shocks. In that she admits that "history provides many illustrations, where stabilisation policies relating to commodities collapsed with the rapid exhaustion of finance", and argues that the stabilizing approach should be pragmatic and there is no confident set of management techniques to make that function optimal. The other conclusion she makes is that the fiscal policy of the oil-producing state must account for the size of oil revenues in the economy.

John Wakeman-Linn, Paul Mathieu and Bert van Selm conclude that oil funds improve coordination between monetary and fiscal policy and the best of the fund is received when it can be separated from the state budget and cannot be easily deployed by the state agencies. The authors exclude the stabilization function of the fund and argue that the "Shortfalls in state budget must be made up through changes/improvements in the state budget" (Wakeman-Linn et al., 2002) The standard macroeconomic literature suggests the real exchange rate appreciation will be accompanied with the increase in oil revenues. Generally, the oil revenues increase the wealth of the overall country and consumers that lead to the increase in the aggregate demand. Tha latter has several effects:

- exports go down for the reason people consume more

- imports go up for the same reason
- exports go down again due to the negative effects of the oil money running into the domestic market; the local productivity goes down for every tradable good except the oil, due to the decrease in the competitiveness of the local production

Jeffrey Davis, Rolando Ossowski, James Daniel, and Steven Barnett justify oil funds on political economy grounds: “Such funds may help the government to resist spending pressures if there are constraints on borrowing. These may reflect explicit fiscal rules or may arise from political difficulties in issuing debt”(2001). As for the stabilization functions, the authors justify it for the case when there is instability in fiscal revenue – this complicates fiscal management, budgetary planning, and the efficient use of public resources: sharp cuts in expenditure, can be disruptive and costly; and increases in revenues can be a temptation to raise spending to unsustainable levels. Large fluctuations in resource revenues may give rise to real exchange rate volatility, and increases in these revenues may lead to "Dutch disease." There are also sometimes concerns that large revenue inflows may be misused or otherwise subject to poor governance. However, while the stability of incomes from investments provides the sense of assuredness, it cannot serve as the only criterion for an investment decision.

The main criteria are the expected growth and minimizing the risk. In addition, the revenue from deploying the nonrenewable resources represents a depletion of wealth that could be saved for the future generations, and it is not sustainable for the long-term, and in that it differs from other revenue types.

C. How Much Risk

The overall strategy needs to consider how the investments are liquid, i.e. how easily and to what extent the investments can be retrieved for a better reallocation among the investment alternatives. Then, it will consider the flow of money into the Oil Fund: this is the inflow, outflow and the net flow for a period between investment decisions. The

portfolio, during the oil production in the country, can also be constructed to as an investment that will hedge the changes in the oil prices, i.e. the incomes they generate will be negatively correlated with the oil revenues of the country.

This is to say, that holding currency from the countries heavily reliant on oil exports is a bad hedging, since their currencies appreciate or depreciate roughly in parallel with the manat and the budget income and consumption. How much illiquidity can the fund afford for a particular investment vis-a-vis the expected returns from an investment? The answer will provide the range of the currencies of various countries to be considered as investment options. There might be no rigid answer, but rather correlations with the amount of the fund resources, the net inflow of the money from all sources and the liquidity of other investments made. The overall liquidity of the fund investments need to be correlated to the short-term use of the fund, i.e. to its stabilization function. I.e. the amount to be retrieved from the fund will depend on the flucutuations in the consumption needs.

However, since the current budget very much relies on the oil revenues it will also be sensitive to the fluctuations of the oil prices in the international market. There are two ways and their combination to protect the budget from oil price fluctuations. One is to sterilize the domestic economy and the other is to use the fund as a budget stabilization mechanism. The overall risk is the function of the diversification. Monte-Carlo portfolio management principles can be applied to arrive to the optimal allocation where the overall return from investments are maximized taken into the account the expected returns from each investment and probabilities (risk factor) associated with each investment. The overall risk can also be alleviated by applying the hedging principle, where systematic risks are minimized by allocating the money in the assets having the negatively correlated growth rates. This will account the systematic risks rather than the individual assessment of risks associated with per investment. This will increase the level of the risk the Fund can afford with each individual investment option. And since, there exists a positive correlation with the expected return rate and the risk

associated in the investment options in the stock market, the strategy is also expected to increase the overall returns. The diversification level, ceilings and numbers as a function of the Fund's overall assets, once determined, need to become a principle rather than a mere methodology, and be reflected in the Fund's operational guidelines.

XII. POLICY IMPLICATIONS

The following strategy is recommended by the paper:

1. All the oil rent money needs to be isolated from the economy, and collected in the Oil Fund, meaning that it should not be transferred into the State Budget, and at the same the Fund shouldn't replicate any of the functions of the State Budget
2. The Fund should select the saving strategy and employ the smooth distribution function at the expense of the stabilization function
3. The Fund resources should initially be invested abroad only
4. The diversification principle needs to be prepared to illustrate the ceilings expressed in percentages of the Fund's resources can be allocated in each country, each type of the business, and each company
5. The ethical principles need to be prepared to outline the countries, the businesses and the companies where the Fund money cannot be allocated
6. The correlation needs to be determined, where the more the Fund grows, the more the percentage share of it can be invested in equity shares rather than in the T-bills
7. The relationship between the risk, expected return, number of investments and overall Fund resources needs to be determined for the investors to serve the maximization principle, sticking to the Fund's rules but not on their own discretion that may have a goal not fully overlapping with the Fund's goal
8. Principles need to be developed for the future possibilities in investing in the domestic business sector, in the form of the separate bank that would expect

the return for the Fund form the investing in the local business higher than from the investment abroad

XIII. CONCLUSION

The efficiency gap in the management of oil money in Azerbaijan is enormous. Improvements need to be made in the accumulation, saving and spending processes of oil money so that this short-term national resource can better serve the long-term development needs of the nation. The necessary changes include redefining and streamlining the Oil Fund in parallel with improvements in budgetary and public investment work.

Sustainable long-term development needs to be a major focus and the only criterion for the use of oil money, as with any public resource. The short-term availability of this resource, however, makes the issue subtler and brings additional concerns. The need for sustainable long-term development makes the macroeconomic concerns a priority. This is to say that the nation's strategy for the use of oil money needs to focus on the long-term growth of GDP, fiscal stability and independence, and monetary concerns in order to avoid inflation, account for the capacity of the public sector and prevent the creation of an environment conducive to corruption. The strategy must clearly delineate the share and dynamics of national consumption, public investments, government expenditures and trade with other countries with the hydrocarbon resources deducted and oil money added to the national assets. A good strategy will measure and use the oil money not for separate consumption expenditures or investment projects, but in line with all public spending, while accumulating and saving that oil money separately.

Macroeconomic development strategies flow into the financial strategy of the Oil Fund as an institution that accumulates and saves money. Once the extent of the application of oil money (i.e. what exactly needs to be accumulated in the Fund) is determined to reflect the nation's most pressing long-term interests, then strategies for

portfolio investments, transfers to the state budget and public investment projects (if the strategy finds it appropriate) must be adopted and implemented.

The recommended improvements regarding the development of the institutional and legal framework will address and make the implementation of the proposed financial strategy for the Oil Fund possible. This will include the development of instructions, guidelines and standards for portfolio investments as well as the rules and standards for transfers from the Fund to the state budget and other domestic public and private uses. The recommended institutional and legal improvements are on the other hand based on the existing situation and current practices, and have political feasibility implications for the suggested changes, which are more extensively discussed in the analysis section of this paper.

A strategy is important for creating the rules for the effective management of the Fund. Having these strict rules is no less important for saving the nation's resources from short-term and populist programmes, as they are for stemming corruption. And the presence of clear efficiency criteria and strict rules along with civil society development facilitates transparency in the management of the Fund. Reciprocally, that transparency becomes a guarantee of the effective management of the Fund and the growth of society's wealth, and thus increases the sense of ownership and the level of civil society along with democracy.

General and specific recommendations

The following is the list of recommendations by this paper for the management of oil money in Azerbaijan:

- The amount of transfers from the Fund into the State Budget in any year, shouldn't be above the Fund's average (calculated for the several past years) portfolio profits that will additionally account the fluctuations, population change

(that would change the Fund's assets per capita) and the inflation and the overall depreciation the Fund's assets in all invested currencies.

- The diversification principle need to be prepared to illustrate the ceilings expressed in percentages of the Fund's resources can be allocated in each country, in each currency, each type of the business, and each company, as well as ceilings expressed in percentages of the invested company's assets.
- The ethical standards need to be prepared to outline the countries, the businesses and the companies to be excluded from the list of potential investment allocations.
- Principles need to be developed for the future possibilities in investing in the domestic business sector, in the form of the separate bank that would expect the return for the Fund form the investing in the local business higher than from the investment abroad.
- Develop a long-term, diversified investment strategy. With a longer-term spending policy in place, SOFAZ can then shift its investments to a longer-term horizon and be able to diversify from the highly liquid but low-yield investments it made in 2001.
- The allocation report needs to be prepared for the every portfolio investment by the Fund. The report will replace the feasibility study, as a justification of selection based on transparent criteria and methodology, as well as the appraisal document that would explain why the selection is made vis-à-vis with other possible allocations.
- Clarify the SOFAZ mission and objectives. The decree establishing the Oil Fund explains that it can be used for the "socio-economic progress of the country" and for "solving the most important national problems." It is recommended that detailed missions and objectives be settled on.
- The regular (at least, annual) evaluation of the Fund's management needs to be conducted where the Fund's performance (profit, risks, ethical standards and

administrative management) will be evaluated against the allocation reports prepared, and the average expectations in the market.

- The standards (financial and ethical) and administrative principles (such as preparation of the allocation report and appraisal, and evaluation principles) need to be developed based on the recommendations here and/or of different expert groups.

APPENDIXES

Appendix 1: Money Market Funds

	2004	2005	2006	2007
JPMorgan Fleming Liquidity Funds	42 146	57 432	2	63 188
Royal Bank of Scotland, Global Treasury Funds plc	16 074	28 887	670	42 822
Barclays Global Investors Funds plc	116	105 442	2	25 106
Goldman Sachs GBP Liquidity Funds	-	-	-	1 490
Wachovia STIF Liquidity Funds	-	-	-	839
DWS Portfolio USD Liquidity Fund	-	4 746	2 201	-
HSBC Global Liquidity Funds plc	55 932	73 439	2	-
Deutche Global Liquidity Managed Fund	29 316	2 422	3	-
	143 584	**272 368**	**2 880**	**133 445**

Source. SOFAZ and IMF, 2008

Appendix 2: SOFAZ investments

	2001	2002	2003	2004	2005	2006	2007
Money market funds	38 290	182 175	50 890	143 584	272 368	2 880	133 445
Deposits	210 874	199 701	287 550	298 246	479 178	6 484	109 052
Cash in bank accounts	220 041	61 559	18 354	30 221	15 896	60 566	73 713

Total cash and cash equivalents	**469205**	**443435**	**356794**	**472051**	**767442**	**69 930**	**316210**

Source. SOFAZ and Ministry of Finance, 2008

Appendix 3: SOFAZ money in securities

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Securities	-	128 866	120 313	131 741	504 056	1 198 026	1 776 219
Liquid assets	469 205	443 435	356 794	472 051	757 442	69 930	316 210
	469205	**572 301**	**477 107**	**603 792**	**1 271498**	**1 267956**	**2 092429**

Source. SOFAZ and Ministry of Finance, 2008

Appendix 4: Cash in Bank accounts

	2004	**2005**	**2006**	**2007**
AZN	-	-	2%	1%
$	99%	53,4%	55%	61%
€	1%	41%	37%	34%
£	-	5,6%	5%	4%
Other	-	-	1%	-

Source. SOFAZ and Ministry of Finance, 2008

REFERENCES

Alayli, Mohammed Ali. Resource Rich Countries and Weak Institutions: The Resource, Curse Effect, Cairo, 2005

Azərbaycan Respublikası Milli Bankını Hesabatları, Bakı, 2007

Azərbaycan Respublikası Dövlət Statistika Komitəsinin Hesabatları, Bakı, 2007

Azərbaycan Respublikası İqtisadi İnkişaf Nazirliyinin Hesabatları, Bakı, 2007

Azərbaycan Respublikası Ministry of Maliyyə Nazirliyinin Hesabatları, Bakı, 2007

Azərbaycanın mədən sənayesi: İctimaiyyəti maraqlandıran aspektlər, Mədən Səanyesində Şəffaflıq Koalisiyası, Bakı, 2005

Azərbaycan Respublikasi Prezidentinin Fərmani "Neft və qaz gəlirlərinin idarə olunması ьzrə uzunmьddətli strategiya"nın təsdiq edilməsi barədə Bakı, 2004

Bayramov, Vugar. Enhancing Transparency in Budgets and Oil Revenues in the Caspian Basin, Civil Society has a Key Role to Play in “Open Space”, 2006 Journal, (Vol 18). No 6. pp 55-62

Calderon, C. and L. Serven, 2004. “The Effects of Infrastructure Development on Growth and Income Distribution.” Central Bank of Chile Working Papers.

Collier, P. F. van der Ploeg, and A. Venables, 2009. "Managing Resource Revenues in Developing Economies." Oxford Centre for the Analysis of Resource Rich Economies.

Concept formation and use of the National Fund of Kazakhstan's medium-term, 2007

Davis, J.M., R. Ossowski, and A. Fedelino, Wakeman-Linn, Mathieu, and van Selm, 2003. “Oil Funds in Transition Economies: Azerbaijan and Kazakhstan,” in “Stabilization and Savings Funds for Nonrenewable Resources,” ed., IMF Occasional Paper No. 205 (Washington: International Monetary Fund)

Davis, J.M., R. Ossowski, and A. Fedelino. Fiscal Policy Formulation and Implementation in Oil-Producing Countries, International Monetary Fund, 2003

Daly John C.K., Analysis: Is Azeri oil blessing or curse?, London, 2007

Dodd, Randall. The Wealth Curse from Natural Resources, NYC, 2004

Dodd, Randall. Providing Credit In Times Of Crisis: A Briefing Paper for New Rules Consultations, NYC, 2005

Ernst, Ulrich F.W. Foiling The Resource Curse: Norway’s Petroleum Fund, Oslo, 2006

Frankel, J., 2010. "The Natural Resource Curse: A Survey." NBER Working Paper No. 15836.

Harding, T. and F. van der Ploeg, 2009. "Is Norway’s Bird-in-Hand Stabilization Fund Prudent Enough?" OxCarre Research Paper 27.

Heuty, A. and J. Aristi, 2009. “Fool’s Gold: Assessing the Performance of Alternative Fiscal Instruments During the Comodities Boom and the Global Crisis.” Revenue Watch Institute.

Ismayilov, Rovshan. Wanted: Investment Strategy For Azerbaijan’s Oil Money, 2006

Kalyuzhnova, Yelena, Overcoming the curse of hydrocarbon: goals and governance in the oil funds of Kazakhstan and Azerbaijan. Publication Title: Comparative Economic Studies, 2006

Koeda, J. and V. Kramarenko, V, 2008. "Impact of Government Expenditure on Growth: The Case of Azerbaijan." International Monterary Fund Working Paper.

Medas, P. and D. Zakharova, 2009. “A Primer on Fiscal Analysis in Oil-Producing Countries.” IMF Working Paper 09/56.

Rigobon, Roberto. Improving the Investment Strategy for the National Fund of the Republic of Kazakhstan, 2004

Rosenberg, Christoph B. and Tapio O. Saavalainen. Dealing with Azerbaijan's Oil Boom, London, 2004

Segura, A, 2006. "Management of Oil Wealth Under the Permanent Income Hypothesis: The Case of São Tomé and Príncipe." IMF Working Paper.

Svetlana Tsalik and Anya Schiffrin, Covering Oil: A Reporter’s Guide to Energy and Development, Revenue Watch, Open Society Institute, Initiative for Policy Dialogue, 2002

Taraldsen, Bjorn. 2007. Management of the Norwegian Government Pension Fund. Norwegian Central Bank. Norway.

Wakeman-Linn, John, Paul Mathieu and Bert van Selm. Oil Funds in Transition Economies: Revenue Management: Azerbaijan and Kazakhstan, 2006

World Bank, 2009. Azerbaijan Country Economic Memorandum. “A New Silk Road: Export-led Diversification.” Report No. 44365-AZ.