

Problems of pension system reforms, financial system stability and capital market development in emerging economies

The article considers problems of pension system reforms arising in most countries with transition economy. As a solution introduction of multi-pillar system of pension provision is recommended. This system supposes existence of pillars based on the principles of both pay-as-you-go system and funded system. Nonetheless, introduction of mandatory funded pension system is connected with substantial risks. The presented article is devoted to the analysis of the risks of introduction of mandatory funded pension system and the main mechanisms of mitigation of risks as well as the social aspects of the reform.

Key words: financial system stability, pension system reform, minimum subsistence level, transition economy, capital market.

Urgency: In most countries with transition economy there is a challenge of securing minimum subsistence level for the people above retirement age.

Current systems of pension provision in most countries with transition economy are based on the principle of solidarity of generations. This principle supposes that the pensions to the people above the retirement age are paid out of the contributions paid by the employers or employees. Thus this is a pay-as-you-go system also referred as PAYG system.

Most countries with transition economy have chosen Chilean model as a benchmark for performing pension system reform. Pension reform in Chile began in 1980–1981. Chilean model supposed transfer of pension system from the principle of solidarity of generations to the principle of funded pension provisions. Chilean model supposed management of pension funds by private management companies. This model led to growth of capital market and created relationship between pension contributions and pension benefits [7]. However, this model had also weak sides and was connected with significant threats. The system is based on “Defined Contributions” (DC) and not “Defined Benefit” (DB) principle. This principle is sustainable for voluntary pension funds but has significant threats when talked about mandatory pension system and social security of the population. As practice showed, actual Chilean model could not fully provide the persons participated in the system with minimum level of pension benefits. In 2008 a new reform began in Chile which was aimed to reduce potential threats and risks and provide people with the minimum level of subsistence. A new pillar of pension system was introduced which was based on the principle of solidarity of generations [11]. Therefore it is of high importance to study and examine all the risks and threats related to the pension system reforms. Especially it is important in the countries with transition economy where the income of population is on the low level and the introduction of fully funded pension system may lead to a situation where pension benefits do not cover the level of minimum subsistence.

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Main trends of pension systems development in emerging economies: The list of Central European, Eastern European and Central Asian countries where Chilean model of capital funded pension system is fully or partially introduced or not introduced is shown in Table 1.

Table 1 – List of Central European, Eastern European and Central Asian Countries where Capital Funded Pension System is Fully or Partially Introduced or Not Introduced [7]

Countries where capital funded pension system is fully or partially introduced	Countries where capital funded pension system is not introduced
Armenia	Albania
Bulgaria	Azerbaijan
Croatia	Belarus
Estonia	Bosnia & Herzegovina
Hungary	Czech Republic
Kazakhstan	Georgia
Latvia	Kyrgyzstan
Lithuania	Moldova
Macedonia	Slovenia
Poland	Tajikistan
Romania	Turkmenistan
Russian Federation	Ukraine
Serbia	Uzbekistan
Slovakia	

The Republic of Armenia may be viewed as a classical example of transition economy. Before 2007 retirement benefits were paid from the budget of the State Fund of Social Insurance of the Republic of Armenia. The expenses of the Fund were mainly paid out of the mandatory social insurance contributions. The Fund was operating on the balanced principle which supposed adequacy of social benefits including retirement benefits to the contributions of mandatory social insurance. The retirement benefits did not secure minimum subsistence level. In this situation the retirement benefits could be increased only by increasing the rate for the contributions of mandatory social insurance. The latter for a country with transition economy where the wages are almost on the level of minimum subsistence was not appropriate. As an alternative the use of the funds of the State Budget was seen. Taking into consideration this circumstance, in 2008 the State Fund of Social Insurance was reorganized into a state service. The budget of the State Fund of Social Insurance was eliminated and the contributions of the mandatory social insurance were directed to the State Budget. The retirement benefits started to be paid out of the State Budget. This made it possible to increase the amount of retirement benefits simultaneously not increasing the rates for the contributions of social insurance [13]. Actually, the increase of the amount of retirement benefits was funded at the expense of current and future payments (increase in budget deficit) of taxpayers. However, this way of increase of the retirement benefits is not reasonable and possible for a long run because will lead to an incommensurable increase in budget burden.

The problem of development of pension system in the countries with transition economy is also deepening by the ageing of the population and existence of a substantial informal sector of the economy. Thus, at the end of 2008 in the Republic of Armenia there was about one person getting retirement benefits per one person making contributions of social insurance. As a comparison, for a system to be considered sustainable this correlation must be 3:1. According to calculations based on actual and estimated demographic data, particularly – birth and death rates, longevity, the above correlation will be worsening in line with the ageing of the population and in the near future the number of people getting retirement benefits will surpass the number of the people who makes contributions of the social insurance [14].

At the same time, the current system of pension provision does not provide relationship between the amount of retirement benefits and the amount of contributions of the mandatory social insurance paid. As a result, the persons, who make the contributions of the mandatory social insurance, are not interested in making these contributions which leads to the formation of informal sector of labor market and concealment of income.

Pension system reform model in Armenia: It is obvious from the above analysis that the pension system needs to be radically reformed to secure its further sustainable development and financial stability. As a solution of the problem introduction of multi-tier system of pension provision is recommended. This system supposes existence of the following tiers of pension provision:

Tier 0 – supposed for the persons who does not have sufficient length of service and participation in contributions of mandatory social insurance. This tier is aimed at the securing the minimum level of subsistence. The length of the minimal service and participation in contributions of social insurance sufficient for getting retirement benefits are set up in accordance with the legislation of the country. For example, according to the Law of the Republic of Armenia on State Pensions, the minimum length of service (during which contributions of mandatory social insurance are made) sufficient for receiving retirement benefits is currently 25 years (not taking into account exceptions provided for by this law and other legal acts) [10]. So, Tier 0 is funded directly from the State Budget.

Tier 1 – supposed for the persons who have sufficient length of service and participation in contributions of mandatory social insurance. Tier 1 of the pension system supposes implementation of the principle of solidarity of generations, i.e. retirement benefits of current pensioners are formed out of contributions of current employers and employees [8]. However, in accordance with the Law of the Republic of Armenia on Income Tax, these contributions will be included in a unified income tax, which will make them quite difficult to be identified [9].

Tier 2 – supposed for the persons who have participated in the mandatory fully funded system of pension provision. Persons, who participate in the mandatory fully funded system, make mandatory accumulative contributions which are accumulated on the individual accounts of these persons. The retirement benefits are paid out of these funds.

Tier 3 – supposed for the persons who have participated in the voluntary fully funded system of pension provision. Persons, who participate in the voluntary fully funded system, make voluntary accumulative contributions which are accumulated on the individual accounts of these persons. The retirement benefits are paid out of these funds [2, 12].

The funds of the fully funded pension system will be accounted in separate individual accounts of participants of fully funded pension system. The Central Depository of Armenia

will be responsible for the maintenance of the individual accounts. These funds will be under the management of private pension funds managers. The pension funds and the pension funds managers will be selected by the owners of pension accounts. The pension funds managers will invest the accumulated pension funds into liquid and reliable financial assets [6, 8]. The person may use the funds accrued on the individual pension account:

- at the retirement age,
- before the retirement age in case of changing citizenship and permanent residency,
- before the retirement age in case of a high-risky or incurable disease included in the appropriate list as established by the authorized body of the Government [8].

Diversification will serve as a main criterion for making investment thus mitigating credit and other risks. As a result of investment, it is supposed increase in the value of the balances of pension accounts. Notwithstanding, for reaching the above objective existence of a large amount of reliable financial assets and highly liquid securities market is necessary. Today, the securities market in most countries with transition economy is at the stage of formation (in some countries with transition economy – early development) where the only reliable and liquid financial assets are the state securities. In this situation the fully funded pension accumulated funds are to be invested either in the state securities or in the foreign securities. In the former case, it is beneficial in short run from the standpoint of lowering maintenance costs of public debt as the supply of funds to be invested in the state securities will increase meanwhile the demand for the funds will remain unchanged. However, with the course of time, the increase in accumulated funds will lead to scarcity of financial assets to invest since the public debt cannot increase by the same rate as accumulative pension funds [1]. In case of investing in foreign securities there will be outflow of capital from the country. At the same time, investments in the foreign securities will be connected with substantial risks, particularly – currency and legal risks. Therefore, for the further sustainable development of pension systems in the countries with transition economy it is crucial to pay attention to the development of the securities market and, especially – the capital market. In turn, development of funded pension system may serve as an engine for the development of the securities market.

Participation of rural population in funded pension system is another issue. Determination of their income which must be the basis for making contributions is a serious problem. The problem is connected with both the reliability of data and the development of optimal methodology for calculation. Such methodology may be based either on cadastral valuation of income of the rural population or on the introduction of accounting agricultural production in accordance with specific standards. The former approach requires thorough assessment and regular reassessment of the results of agricultural production by the appropriate governmental agencies. In case of use of this method the income of a specific person is determined on the basis of mean data. Therefore, the income calculated with this method is conventional income. The alternative solution is the introduction of accounting of results of agricultural production in accordance with specific standards. However, introduction of such accounting is not feasible in the first phase of the pension system reform and must be accomplished gradually, discovering shortcomings of the system and enhancing the mechanisms of accounting.

Problems will arise also if the rural population does not participate in the mandatory funded pension system. In case they do not participate in the mandatory funded pension system the size of their pension benefits will be significantly lower than the mean size of the

pension benefits in the country. This may lead to the intensification of social tension in the rural communities and creation of additional factors contributing to the outflow of the population from the rural communities. Taking into account that the nonparticipation of rural population in the mandatory funded pension system will be mainly conditioned by the difficulties of calculation and accounting mentioned above and not by their unwillingness to participate, it is necessary to determine the sources for compensation of differences in pension benefits in urban and rural communities.

Thus, introduction of mandatory fully funded pension system will allow:

- to increase amount of retirement benefits simultaneously not increasing mandatory social insurance contributions rates and budget burden,
- to make relationship between amounts of retirement benefits received and amounts of contributions paid, increasing interest of employees to present their real incomes.

Financial risks and financial system stability: Nonetheless, introduction of mandatory fully funded pension system is connected with substantial risks. First of all, it must be taken into account that accumulated funds are to be invested in certain financial assets. The future value of these assets depends on many factors both of economic and noneconomic nature. Moreover, both economic and noneconomic factors may substantially influence the price of the portfolio of financial assets. Among economic factors both microeconomic and macroeconomic factors are to be stressed. From the standpoint of the participant of the fully funded pension system, the main risks are connected with irrational management of assets and mitigation of risks. From the standpoints of financial stability of pension system as a whole, the main risks are connected with macroeconomic fluctuations and possibility of appearance of financial crises. As a result, in the course of 20–30 years of making accumulative pension contributions (before the retirement age) there may be not only substantial decrease in value but also total impairment of the portfolio of financial assets in which the accumulated pension funds are invested. In such a situation, the burden of pension provision will lie on the first two pillars of pension system, i.e. on the State Budget and distributive system of social insurance. Therefore it is necessary thoroughly to assess all the possible risks and develop mechanisms for mitigation of risks. Main mechanisms of mitigation of risks may be setting standards for diversification of assets in which the accumulated pension funds are to be invested and developing legal base for the protection of interests of the participants of the fully funded pension system. Diversification of assets in which the accumulated pension funds are to be invested supposes availability of variable reliable financial assets and existence of high liquid securities market. Taking into account that the securities market in many countries with transition economy is currently in the stage formation, it is important to pay attention to the development and regulation of the securities market, as well as to the development of mechanisms of protection of the rights of investors in the securities.

In such a situation when there is a lack of reliable financial assets where the accumulated pension funds may be invested, substantial portion of these funds will be invested in bank deposits. Therefore it is also important to introduce principles of Basel III into banking system. These principles have been developed after the last global financial crisis and have anti-cyclical character. This is especially important for the investment of accumulated pension funds which are to be invested for long period. Especially, it is important to introduce a leverage ratio as a supplementary measure to the Basel II risk-based framework which will substantially decrease cyclicity [2; 3; 4; 5]. The main formula for calculation of Basel II

risk-based capital adequacy is as shown in Formula 1.

$$\text{Capital Adequacy} = \text{Total Capital (Tier 1 and Tier 2)} / \text{Risk-Weighted Assets}. \quad (1)$$

Risk-weighted assets are calculated as follows:

$$\text{Risk-Weighted Assets} = \text{Credit Risk} + 25/3 (\text{Market Risk} + \text{Operational Risk}). \quad (2)$$

Credit risk, in turn, is calculated in the manner showed in Formula 3.

$$\text{Credit Risk} = (A_1 - P_1)R_1 + (A_2 - P_2)R_2 + \dots + (A_n - P_n)R_n, \quad (3)$$

where A_1, A_2, \dots, A_n – are the assets grouped by the same risk weights; P_1, P_2, \dots, P_n – are provisions for depreciation of the assets grouped by the same risk weights; R_1, R_2, \dots, R_n – are the risk weights.

In Basel II risk-based framework any asset is weighted with its credit risk weight for the purpose of calculation of capital adequacy. The assets which have low credit risk are attributed with low credit risk weights whereas assets which have higher credit risk are attributed with higher risk weights. Many financial assets are attributed credit risk weights according to their credit rating rewarded by credit rating agencies, such as Standard & Poor's (S&P), Moody's or Fitch. These credit ratings may be quite high in the period of economic boom but may fall down rapidly in the course of recession. Thus, low-risk investments of pension funds may turn out rather risky in the course of recession. The same is due to the bank investments. And it may turn out in a short period of time that the funds of investors are invested in very risky assets and that the bank capital is not adequate to that risk. This may be avoided by putting floor to the risk-weighted capital adequacy which may be done by setting leverage ratio of the total capital and the assets.

Main conclusions and suggestions: It would be reasonable to introduce fully funded pension system gradually. The main pillar of pension system should be the pillar based on the principle of solidarity of generations and not the pillar of mandatory fully funded pensions. Such an approach to the pension reform will allow continue pension reform simultaneously not exposing the State Budget to excessive risks. The portion and importance of mandatory fully funded pension pillar should be increased proportionally to the development of the securities market, and particularly – the capital market, and the mechanisms for the protection of interests of the participants of the fully funded pension system.

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**Проблемы реформы пенсионной системы, стабильности финансовой системы
и развития рынка капитала в странах с переходной экономикой**

В статье рассматриваются проблемы возникающие в процессе осуществления реформы пенсионной системы в странах с переходной экономикой. В качестве решения предлагается внедрение многоуровневой системы пенсионного обеспечения. Эта система предполагает сочетание принципов солидарности поколений и накопительной системы. Тем не менее, внедрение обязательной накопительной пенсионной системы связана с существенными рисками. Статья посвящена также анализу рисков связанных с внедрением обязательной накопительной пенсионной системы и разработке основных механизмов снижения рисков, а также социальным аспектам реформы.

Ключевые слова: стабильность финансовой системы, реформа пенсионной системы, прожиточный минимум, переходная экономика, рынок капитала.

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**Проблеми реформи пенсійної системи, стабільності фінансової системи
і розвитку ринку капіталу в країнах з перехідною економікою**

У статті розглядаються проблеми виникають у процесі здійснення реформи пенсійної системи в країнах з перехідною економікою. Як рішення пропонується впровадження багаторівневої системи пенсійного забезпечення. Ця система передбачає поєднання принципів солідарності поколінь та накопичувальної системи. Тим не менш, впровадження обов'язкової накопичувальної пенсійної системи пов'язана з істотними ризиками. Стаття присвячена також аналізу ризиків пов'язаних з впровадженням обов'язкової накопичувальної пенсійної системи та розробці основних механізмів зниження ризиків, а також соціальним аспектам реформи.

Ключові слова: стабільність фінансової системи, реформа пенсійної системи, прожитковий мінімум, перехідна економіка, ринок капіталу.