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The state of the global market of project financing and the problems of its development in Ukraine

Abstract
The article contains current analytical review of global project financing market. Some issues on economic essence of project financing were covered. It was determined that project financing is a modern financial tool with a strong potential in providing the economy with financial resources for its development. The authors researched dynamics of the global project finance market, identified its main trends and causes of changes. It was found that the global market of project financing is sufficiently volatile with some positive trends during last years. Besides, regional peculiarities of development of the project financing market were determined, the projects which are of the greatest interest to its participants were identified. It helped to make a conclusion that the development of the world project financing market highly depends on the successfulness and scale of the projects that are active in a corresponding state. The authors also found that the most priority economic sectors include power, oil and gas, transportation, leisure and property, mining. Based on the collected data, authors made their forecasts about the development of the global project financing market in 2019. They also identified the factors that impede the development of the project financing market in Ukraine. Proposals for intensification of project financing were made, in particular by developing relevant regulatory documents and establishing a national development bank.

Keywords
financing, project financing, global market, national development bank, project, bank

JEL: F340, F300, G210, G150

1 Relevance of research

One of the most effective methods of investment activity financing is project financing. This form of financing began to develop in the world when large-scale project costs and risks became the most serious issues for financial management of corporations. Only project financing allowed corporations to reduce lenders' requirements for project sponsors and allow them to have off-balance sheet debt when implementing large projects. Also, in times of financial and government crises, project financing can attract significant financial resources to new projects both in developed and emerging markets. In this sense, project financing will play an important role in financing future large investment projects.

However, with the increasing influence of globalization trends on the development of project financing, it is necessary to study the current state of project financing and determine the vectors for its development, taking into account the needs of regional capital markets in developing countries.

2 Analysis of recent research and publications

Study of the database of scientific publications, in particular of International Scientific Indexing [11] on project financing issues, indicates the widespread use of this concept in the research of scientists, including finance, business economics, computer science, engineering, energy and environmental sciences (ecology). However, most researchers argue that project financing in its present form originates from the development of the electricity market in the United States after the adoption of the Public Utility Regulatory Policies Act of 1978 (Finnerty, J., 2007) [4].

Development of project financing on the European continent began in the early 1970s in the oil industry. Over the next ten years, project financing in Europe was used for low technology risk projects (Gatti, 2012) [5]. In the 1980s and 1990s project financing evolved into a new era the development stages of which were thoroughly explored by Yescombe (2002) [4]. The researcher established that project financing in developing countries began to evolve as a way to transfer a significant share of the burden of financing to the private sector. In developed countries, at the same time, this is a method of financing projects for building basic infrastructure.

Another scholar - Ballestero (2000) [1] - describes project financing as a reliable tool that involves the use of a set of risk protection mechanisms to invest in infrastructure projects or capital intensive projects such as roads and highways, railways, pipelines, dams, power generation, mineral processing and other facilities in industrial and developing countries. At the same time, according to Nevitt and Fabozzi (2000) [13], project financing can be defined as "a financing of a particular economic unit in which the lender first draws attention to the cash flow and profit of that economic unit as a source of funds from which the loan will be repaid and to the assets of the economic unit as collateral for the loan."

Esty (2004) [3] defines project financing as "the creation of a legally independent project company financed by the equity of one or more sponsoring firms and non-recourse financing for the purpose of investing in a capital asset".

Ukrainian science is also strongly interested in project financing issues. The peculiarities of the organization of the project financing process are studied in the works of Maiorova and Liakhova (2018) [12] and others. All these articles are united by the fact that the authors have focused on studying concrete examples of project financing application in the world's practice, characterization of its peculiarities, possibility of implementation of this experience in Ukraine. However, there was no analytical review of the global market of project financing, which significantly complicates the process of understanding of its current state and trends at the global regional level.

3 The results of the research

Thomson Reuters's analytical studies of the global project financing market show that it is not going through the best of times. The worst year for project financing was 2017 when the volume of the global market for project financing was reduced from 267,416 million USD in 2016 to 229,638 million USD or by more than 14% (Table 1).

During this period, the largest decrease (almost twice from 152,335.7 million USD to 84,826.3 million USD) was observed on the European continent. The best trends in the growth of project financing were seen on the American continent. However, in 2018 the market was again reactivated and the total volume of transactions already amounted to 282,684 million USD.

If we look at the dynamics of regional project financing markets, we can note that their dynamics do not coincide with trends in the global market in general, which is related to the peculiarities of the development of national economies within a particular region and their being in different phases of the investment cycle (Figure 1).

Africa, Central Asia and the Middle East showed the most negative dynamics after the rapid growth in 2016, mainly due to the decline in investment activity in the latter two regions. As noted above, this was primarily due to a sharp decrease in Russia's activity in the project financing agreements market from 19 billion USD to less than 1 billion USD. In 2018, the Asia-Pacific region saw a sharp decline due to the closure of a number of projects in Pakistan, India and Bangladesh, as well as a 28% decrease in project financing in the mentioned Africa, Central Asia and the Middle East due to the completion of projects in the UAE, Saudi Arabia, Mozambique, Kenya and Guinea.

In 2019, the trend changed and there was a rapid growth in the region (by 70% compared to the same period in 2018). This was mainly due to concluding major agreements in Bahrain and the UAE.

At the same time, after the decline of 2016 in 2017 Europe and the Asia-Pacific region, with the exception of Australia, returned to a positive trend, which remained in 2018 the same for Europe and America, the growth in the US region being mainly due to Canada (where project financing transactions grew by 54%) and the United States. One of the factors behind this growth was the high level of activity of the Mitsubishi UFJ Financial Group

TABLE 1 Global and regional markets of project financing in 2015-2019, million USD [6-10]

Region	2015	2016	2017	2018	9 months 2019
World	**277475.9**	**267416.1**	**229638.2**	**282684.8**	**181846,8**
Americas	*91819.4*	*55682.8*	*64431.3*	*96043.1*	*58263.5*
Central America	8293.4	4713.3	6904.5	5373.0	4403.8
South America	17049.6	12557.6	6453,.3	25021.4	19191.1
North America	64370.9	38146.8	49972.1	64601.2	34564.7
Caribbean	2105.5	265.0	1101.4	1047.5	104.0
EMEA	*109418.6*	*152335.7*	*84826.3*	*110110.1*	*68193.2*
Africa/Middle East/Central Asia	32739.7	61436.9	26838.1	19342.9	15761.5
Sub-Saharan Africa	10473.4	10883.6	11779.0	7274.5	5832.5
Middle East	17904.3	3693.6	844.5	9683.6	12086.2
Central Asia	3559.0	46519.2	11705.0	660.0	720.0
North Africa	803.0	340.5	2509.6	1724.9	252.0
Europe	76679.0	90898.7	57988.2	90767.2	52431.8
Eastern Europe	13493.1	24457.2	6450.4	12350.2	3727.7
Western Europe	63185.9	66441.6	51537.8	78417.0	48704.1
Asia-Pacific & Japan	*76237.9*	*59397.6*	*80380.6*	*76531.6*	*53741.7*
Australasia	27280.7	27323.7	25006.6	33148.5	15200.8
Southeast Asia	7561.7	11781.2	21553.0	15152.4	17725.4
North Asia	21719.0	1730.3	3968.4	9264.6	5060.4
South Asia	16464.2	8666.2	21314.7	9442.7	9156.6
Japan	3212.3	9896.2	8538.0	9523.4	6598.5

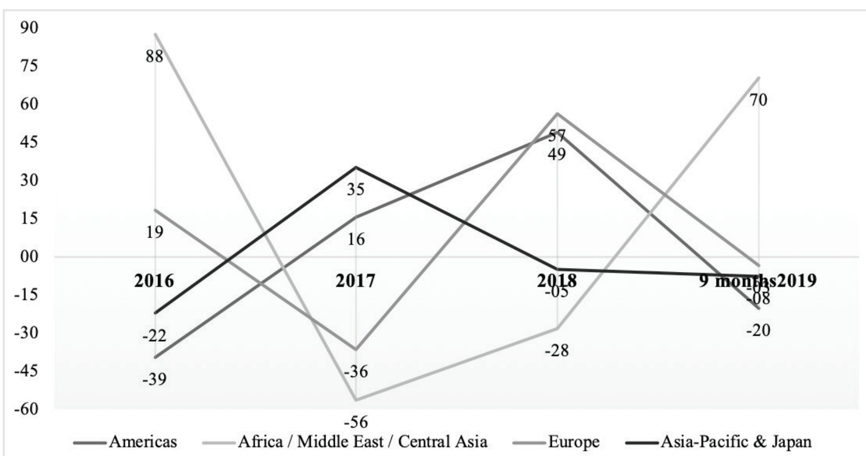

Figure 1 Dynamics of project financing regional markets in 2017-2019, % [6-10]

financial-banking holding. At the same time, these countries, along with Peru, Honduras and Colombia, caused project funding to decline in the region in the first 9 months of 2019.

The increase in the volumes of project lending in such countries as India, Indonesia, the Philippines, Thailand and Pakistan has driven the growth of project financing in the Asia-Pacific region. The Indonesian market looks very promising due to significant energy agreements and because the state-owned electricity giant Perusahaan Listrik Negara has embarked on a liberalization of the policy on independent energy projects. This activity in India increased more than twice in 2017 to 17.9 billion USD, mainly due to the refinancing of a number of previous agreements. In 2019, this country as well as Malaysia and Taiwan have contributed, through successfully launched projects, to the growth of project financing in the region. And these were infrastructure projects in the field of transport, energy, petrochemical and mining industries.

As regards Europe, in 2017 its Western part was marked by such a significant decline in project financing market activity that, despite positive dynamics in its Eastern part, it reduced project financing volumes in Europe by 36% mainly due to a decrease in mergers and acquisitions in the region, in particular in Sweden. In 2018, the situation turned to positive dynamics (an increase of 57%) due to projects implemented in Italy, the United Kingdom, Turkey and Germany.

It is interesting to note that, according to data of the three quarters of 2019, traditionally significant regional markets showed a decline, while Middle East (488%) and Southeast Asian (66%) countries showed a huge increase due to the financing of major projects within this region.

If we look at the regional structure of the global project financing market, we can see that it is more variable than the structure of the project financing market under the entities (Figure 2).

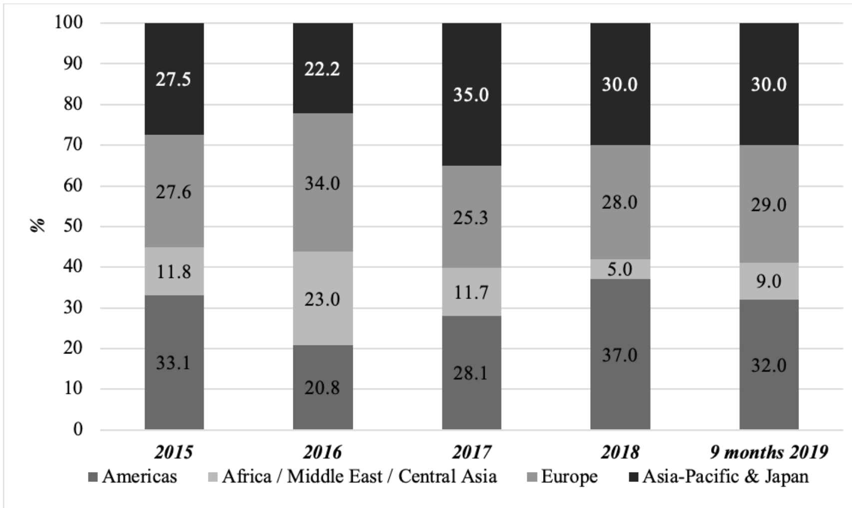

Figure 2 Regional structure of the world project financing market in 2016-2019, % [6-10]

Whereas in 2015 America was the leader (33.1%), while Europe, Asia-Pacific region and Japan practically shared the second position, in 2016 it was Europe to take the first place (34%), having pushed America to the last place (20.8%). In 2017, the situation changed again, with leadership in the Asia-Pacific region and Japan (35%), America taking second place (28.1%). In 2018, America (37%) took the lead, while Asia-Pacific region and Japan gave way. With respect to the first 3 months of 2019, the 2018 leader retained its position but reduced its market share to 32% (primarily due to declining activity in the Caribbean). Europe's share of project financing in the world also increased (by 29%) due to major projects in the UK and France. At the same time, after a sharp decline the presence of Africa, the Middle East and Central Asia in the project financing market increased slightly in 2019 (up to 9%).

On the basis of project financing volumes worldwide, we have drawn a dotted chart to determine the polynomial trend of project financing changes on global scale (Figure 3). Based on the trend equation, the forecast values of this indicator were calculated in the 4th quarter of 2019.

The calculations showed that even the quarterly values of project financing agreements volumes

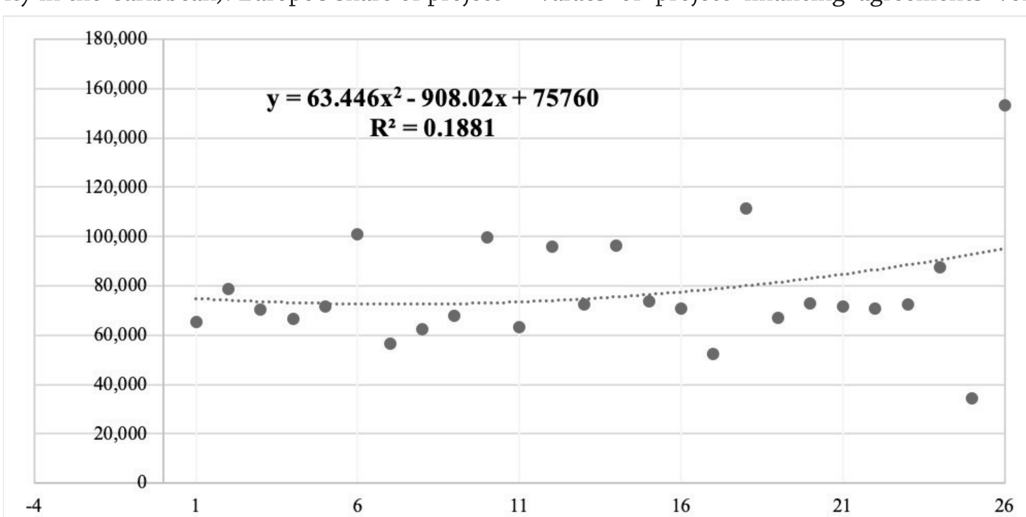

Figure 3 Polynomial trend of changes of project financing quarterly volumes in the world in 2012-2019

have significant volatility, as indicated by the small value of determination coefficient R2. The calculated values confirmed at the same time that during the year the dynamics of the indicator may change (in the 4th quarter, according to forecasts, the volume of project financing in the world is expected to increase to 111,672 million USD, while in the previous quarter it decreased accordingly from 109,669 million USD to 76,273 million USD). Such lack of uniformity is not a deviation, considering that such fluctuations were observed in other years (a striking example is 2016, when in the 1st quarter the project financing amounted to only 52,502.43 million USD, while in the second quarter it increased more than twice to 111,369.89 million USD). At the same time, according to the projected calculations, the tendency towards weakening of the market will resume: the volume of project financing in the world in 2019 will reach the level of 395,569 million USD, which is less by 13% in comparison to 459,595 million USD in 2017.

Last but not least, we will investigate the sectoral structure of the global project financing market (Table 2).

Thus, in 2015 the largest share of the volume of project financing agreements belonged to the power sector which further strengthened its leading position, reaching a share of 53.5% in 2017. However, in 2018 and during the first 9 months of 2019, there was a tendency towards the reduction of the share of the sector, while the volume of financed projects in the power sector still continued to grow. A significant share of the world market belongs to the industry of oil and gas production and processing, however this indicator gradually decreased from year to year: in 2015 - 20.2%, in 2016 - 17.2%, in 2017 - already 16.4%. The situation changed in 2018, when the volume of financing of such projects increased from 37,665.2 USD to 54,068.8 million USD. Its competitor, the transportation industry, also has a high share of project financing in the world, but its fluctuations are not one-sided: whereas in 2016 it decreased to 17.2%, in 2017 this figure increased by 1.3 percentage points, declined again by 0.6 percentage points in 2018 (although project financing volume increased).

TABLE 2 Sectoral structure of the global project financing market in 2015-2019 [6-10]

Sectors	2015		2016		2017		2018		9 months 2019	
	Volume, million USD	Share, %	Volume, million USD	Share, %	Volume, million USD	Share, %	Volume, million USD	Share, %	Volume, million USD	Share, %
Power	106.8	38.5	136151.7	50.9	122812.5	53.5	137627.6	48.7	78619.1	43.2
Oil & Gas	56.1	20.2	45992.0	17.2	37665.2	16.4	54068.8	19.1	44131.0	24.3
Transportation	62.8	22.6	46085.3	17.2	42359.2	18.5	50513.7	17.9	25493.9	14.0
Petrochemicals	13.4	4.8	14485.2	5.4	2072.9	0.9	3536.7	1.3	12183.9	6.7
Leisure & Property	10.4	3.8	8221.1	3.1	9051.5	3.9	13288.2	4.7	6203.5	3.4
Industry	12.1	4.4	6752.5	2.5	7198.0	3.1	2704.9	1.0	976.4	0.5
Mining	8.7	3.2	4213.5	1.6	3992.8	1.7	7632.0	2.7	7277.8	4.0
Water & Sewerage	6.1	2.2	3371.1	1.3	1707.9	0.7	4789.6	1.7	3441.1	1.9
Telecommunications	0.8	0.3	1302.5	0.5	2408.2	1.1	7390.8	2.6	3352.0	1.8
Waste & Recycling	0.3	0.1	851.1	0.3	285.8	0.1	1132.5	0.1	168.1	0.1
Total	277.5	100	267416.1	100	229638.2	100	282684.8	100	181846.8	100

The rest of the industries are not significant in the global project financing market, as their share did not exceed 5.2% during the years covered under analytical review. However, it is necessary to note a sharp decline in project financing within the petrochemical industry from 5.4% to 0.9% in 2017.

The sector of waste and recycling, which in 2017-2019 amounted to only 0.1%, traditionally constituted the smallest share of the project financing market.

The size of the global project financing market is significant. Despite the advantages in the global world, project financing in Ukraine is still not often used in the implementation of large-scale projects aimed at developing infrastructure and strengthening export potential. The main reasons restraining its development are:

- insufficient level of development of domestic sources of debt financing in comparison with those in developed countries;
- domestic credit markets do not have sufficient liquid funds necessary for large-scale financing of projects;
- there is no experience in assessing and assuming part of or the whole project risk;
- insufficiently developed legal culture and legislative stability in the field of harmonization and distribution of risks;
- commercial and credit documentation for project financing is complex and should be supported by the legislative framework;
- limited experience of qualified participants in project financing - organizations and firms that can assume the functions of managing

large projects.

The development of project financing cannot be imagined without the participation of banks. The peculiarity of the participation of banks in project financing is that they are not only creditors, but also direct participants in the project, acquiring a stake of the borrower or introducing their representatives to the board of directors for direct control over the targeted use of funds for an additional guarantee of loan repayment. In this case, the bank receives an undeniable informational advantage, since no significant management decision will be made without its knowledge.

In order to intensify project financing in Ukraine, it is necessary first of all to adopt relevant legislative acts in which the definitions should be clearly made: project financing (lending), project contracts, a specialized project company, securitization of project assets, etc. This will help to resolve such important aspects of project financing as the functions of a special purpose vehicle (SPV) in the framework of project financing; peculiarities of securing property under the loan commitments project; use of future income to repay liabilities to creditors at the construction stage; collective exercise of the rights of creditors; project cash flow protection, etc.

Decision to establish a State Development Bank in Ukraine is important. This will help to stimulate and support the development of priority sectors of the economy, implementation of investment and innovation projects, attraction of long-term external investments in the national economy. Such a bank should be a first-tier bank that will provide resources to commercial banks for issuing long-term loans (up to 10 years) for the modernization of the economy.

We are talking primarily about high-tech industries - aircraft, shipbuilding, space and rocket industry, mechanical engineering; as well as strategic sectors of the economy - fuel and energy sector, housing and communal services, transport infrastructure and agriculture. The development of these industries ensures long-term economic growth, development of new technologies and massive creation of jobs.

Among the countries of the former Soviet Union, the best experience in creating such a bank in Kazakhstan. The Development Bank of Kazakhstan [2] was established in 2001 as a state development institute; it provides financing for projects in industry and infrastructure. The main areas of its activity are: development of industrial infrastructure and manufacturing industry, assistance and attraction of external and internal investments in the country's economy. In addition, it is one of the largest investment operators of state programmes for industrial and innovative development. The experience of Kazakhstan shows that the most successful were those that focused on lending on an industry basis, while choosing advanced technological projects.

However, the creation of a new specialized institution in Ukraine is inevitably associated with certain risks. If such a bank will exclusively refinance commercial banks, then it can compete with the NBU, besides it can create competition for ordinary banks by dumping loan offers. Therefore, it is important that the implementation of all projects and the allocation of funds be carried out as transparently and competitively as possible.

However, all these measures will be effective only if a system of state guarantees is introduced in the financing of projects, including by:

- NBU lending to commercial banks to maintain liquidity in order to resume the process of investment lending to businesses;
- full or partial compensation of interest (at the expense of the State Budget of Ukraine and local budgets) on investment loans issued by commercial banks;
- providing state guarantees to banks and other financial institutions that provide loans or insurance of priority investment and innovation projects, etc.

4 Conclusions

Summarizing the above, we can conclude that the growth of project financing in individual countries and regions is caused by specific factors at the global level, as well as internal political, economic, social and environmental factors. For example, global climate change issues have led to increased activity in the use of project financing in Europe and North America in the energy sector. Government stimulus programmes, including targeted efforts to stimulate renewable energy investments and other low-carbon forms of energy, have led to increased project financing in the European Union, which has set itself the ambitious goal of having 20% renewable energy by 2020.

The intensification of globalization processes, which are manifested in the strengthening of interregional ties, necessitate the intensification of cooperation between countries in the field of transport infrastructure development (first of all, airports and highways of international importance), supply of energy resources, intensification of cooperation in the development of alternative energy.

A peculiarity of the global project financing market is that it involves a large number of different financing methods (lending, project bond issuance, leasing, public-private partnerships, corporate rights acquisitions), as well as a wide range of entities, both traditional (commercial banks, stock market investors, project sponsors, international financial institutions and organizations) and specific for project financing (law firms and technical intermediaries). Although in recent years the global project financing market has shown some weakening of the market, it is still much more powerful than the domestic market, in particular due to the developed market infrastructure.

Weak development of the domestic project financing market is caused not only by significant domestic factors, but also by the global tendency to decline in the level of activity in the global market for financing investment and infrastructure projects. At the same time, the development of project financing in Ukraine is an integral part of reforming and updating the financial sector in the face of today's global challenges.

References

[1] Ballestero E 2000 Project Finance: A Multi-Criteria Approach to Arbitration *Journal of the Operational Research Society* **51**(2) 183-97
[2] *Development Bank of Kazakhstan* **E-source:** https://www.kdb.kz/
[3] Esty B C 2004 *Modern Project Finance: A Casebook* Wiley
[4] Finnerty J 2007 *Project Financing Asset-Based Financial Engineering* New York: John Wiley & Sons
[5] Gatti S 2012 *Project Finance in Theory and Practice: Designing, Structuring, and Financing Private and Public Projects* Academic Press
[6] *Global Project Finance Review. First Quarter* 2018 **E-source:** http://www.pfie.com/Journals/2018/04/25/e/v/u/PFI-Financial-League-Tables-Q1-2018.pdf
[7] *Global Project Finance Review. Full Year 2016* **E-source:** http://dmi.thomsonreuters.com/Content/Files/4Q2016_Global_Project_Finance_Review.pdf
[8] *Global Project Finance Review. Full Year 2017* **E-source:** http://dmi.thomsonreuters.com/Content/Files/4Q2017_Global_Project_Finance_Review.pdf
[9] *Global Project Finance Review. Full Year 2018* **E-source:** http://www.pfie.com/Journals/2018/04/25/e/v/u/PFI-Financial-League-Tables-Q1-2018.pdf
[10] *Global Project Finance Review. 3 Quoters 2019* **E-source:** http://www.pfie.com/Journals/2019/03/25/e/v/u/PFI-Financial-League-Tables-Q3-2019.pdf
[11] *International Scientific Indexing* **E-source:** https://isindexing.com/isi/index.php
[12] Maiorova T V, Liakhova O O 2016 *Systema orhanizatsii protsesu proektnoho finansuvannia Finansy, oblik i audyt* **2**(28) 103-16 *(in Ukrainian)*
[13] Nevitt P K, Fabozzi F J 2000 P*roject Financing* Euromoney Books
[14] Yescombe E 2002 *Principles of Project Finance* Academic Press