

Impact of Banking Real Estate as an Asset Class on Financial System Stability: Monitoring, Forecasting, Management

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Abstract: In this article, we discuss interdependency between real estate markets and financial stability. To study this relationship, we analyze Russian banking sector real estate assets structure and observe material concentration of real estate assets on largest banks' books as well as anticipate that this may present a unique challenge for Russian banking regulator. We propose the development of system of indicators for strategic portfolio management for banking real estate and outline broad directions for further research on the subject to meet this challenge and mitigate potential risks for the banking sector.

Keywords: Banking sector, real estate, financial stability, real estate market, real estate portfolio.

1. INTRODUCTION

Financial crisis of 2007-2008 in the United States made international community recognize the nature of risky interconnectedness between real estate markets dynamics and global financial markets health given the fact that it started as a mortgage crisis first. Due to underestimation of risks inherent for real estate markets, the worst case scenario of national and international economic crisis (as reflected in decreasing industrial indicators, employment and consumption) was not avoided, which subsequently resulted in financial (steep decline in assets prices) and finally, banking crisis (insolvency of banking institutions reflected in their ability to meet financial obligations).

One of the most important reactions to the crisis by the international financial regulators was the revision of capital requirements for banking institutions codified in revised Basel III standards, which are almost universally believed to be able to affect real estate markets dynamics due to the more conservative approach of many financial institutions towards loans secured by the real estate.

However, realization of systemic interconnectedness between real estate markets dynamics and financial markets stability is not limited to more stringent capital requirements for real estate loans (as well as structuring of complex derivatives with real estate as collateral). Regulators (both in Russia and internationally), serving as systemically important

consumers of academic research on the real estate markets and financial stability, increasingly recognize that real estate as an asset class plays a more significant role in financial system stability than was previously thought (particularly before 2007-2008 financial crisis in the United States). Given the above, we believe that financial regulators may, in setting their overall policy, greatly benefit from solution of the very important practical and scientific problem – namely, determination of the level of influence and corresponding mechanisms of the real estate markets values dynamics and their impact on financial system stability.

Additional factor, which increases the necessity for more in-depth and systemic study of the real estate markets for the purposes of setting banking sector regulations, are characteristics of real estate markets as predominantly local, cyclical in nature as well as characterized by relatively inelastic demand and considerable information asymmetry of information on real estate transactions. This, in turn, presents a unique challenge for regulators in developing comprehensive regulatory instruments tailored towards complexity and considerable segmentation of banking real estate portfolios as well as factoring in potential impact of real estate markets volatility on the banking sector stability.

2. STATE OF RESEARCH ON THE SUBJECT INTERNATIONALLY

Following mortgage crisis in the United States in 2007-2008, it was almost universally accepted that real estate not only represents real (i.e. tangible) asset, but also comprises a considerable portion of the debt

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markets (in the form of both mortgages and mortgage-backed securities) as well as equity markets (in the form REITs). Therefore, for example, Moody's international rating agency included real estate portfolio cash flow volatility ratings into other their non-credit ratings group (Fedotova *et al.*, 2017).

Growing recognition of the role of the real estate markets for financial markets stability is also reflected in academic activity, including organization of international expert discussions and conferences that bring together representatives of central banks, international organizations, academic community and monetary regulators who jointly seek solutions of creating adequate regulatory framework for managing risks associated with the real estate markets volatility.

On the most notable conferences on the subject matter, which underlined high level of attention to the subject of the real estate markets and financial stability was the conference jointly organized by the Bank for International Settlements and the Monetary Authority of Singapore, which brought together representatives of the South Pacific central banks, International Monetary Fund and academic circles of the United States and the United Kingdom titled "Property markets and financial stability". Conference that was organized by the "central bank of central banks" was structured around four key themes:

1. Lessons from the crisis (Note: financial crisis of 2007-2008);
2. House price assessment;
3. Housing booms and busts;
4. Property, credit and markets.

Combination of key themes, which is otherwise quite untypical of central banks' usual research focus, is as worth noting as the thesis of particular papers presented. For example, in his paper "Dealing with real estate booms and busts", Deniz Igan, an economist in the International Monetary Fund (IMF) Research Department's Macro-Financial Linkages Unit, notes (Igan 2012):

«Real estate is an important, if not the most important, storage of wealth in the economy. Additionally, the majority of households tend to hold wealth in their homes rather than in equities. Typically, in advanced economies less than half of households own stock (directly or indirectly), while the home

ownership rate hovers around 65 per cent. In addition, the supply-side effects can be substantial. In most advanced economies, house price cycles tend to lead credit and business cycles. This suggests that fluctuations in house prices create ripples in the economy through their impact on residential investment, consumption and credit, while the reverse effect is not as prominent, implying that the housing sector can be a source of shocks. Recessions that coincide with a house price bust tend to be deeper and last longer than those that do not, and their cumulative losses are three times the damage done during recessions without busts (emphasis is ours). Again, by contrast, recessions that occur around equity price busts are not significantly more severe or persistent than those that do not».

Observations made by the author do not only illustrate a prominent role that real estate as an asset class plays in financial crises, but also underlines the fact that real estate market volatility plays a central role in the most protracted and damaging episodes of recessions. These conclusions are based on the deep understanding of the most crucial characteristics of real estate markets: relative illiquidity of the real estate assets, low transparency or real estate transactions data, significant negative externalities (i.e. considerable influence on unemployment and population mobility) of real estate crises.

3. STATE OF RESEARCH IN RUSSIAN ACADEMIA AND FINANCIAL INDUSTRY PRACTICE

In analyzing state of research regarding interconnectedness between real estate markets and financial stability in Russia, one has to bear in mind that Russian financial industry is rapidly changing due to technological change as well adoption as the adoption of Basel III regulatory framework by the banking regulator and financial industry. Russian central bank implements tools for managing risks, which are typically associated with real estate markets (for example, as part of Basel III implementation, Russian banks with considerable real estate portfolios prepare and implement risk management policies for real estate portfolio valuation risks, i.e. biggest bank in Russia – Sberbank considers real estate risks as material for Sberbank Group and develops and maintains real estate related risk policy (Sberbank 2018), while Russian central bank retains the right to, for example, examine real estate assets used as a collateral under mortgage and other types of loans).

Having said that, we observe a certain shortage of studies tailored towards understanding and exploring systemic linkage between stability of financial industry and real estate markets (both in their dynamics and the level of real estate markets development and transparency as for example defined by Global Real Estate Transparency Index (Global Real Estate Transparency Index 2018)). Additionally, we observe that there are certain traits of Russian economy overall, real estate market and financial industry, which are otherwise not typical for more developed economies and that potentially increase the necessity for such studies, i.e.:

- Considerable consolidation of Russian banking sector and, as a result, corresponding concentration of real estate-related risks within the most systemically-significant financial institutions;
- Uneven development of the local real estate markets across Russia and, as a result, concentration of the most progressive technologies and competencies of real estate management and valuation within the most developed ones (i.e. Moscow, Saint Petersburg being at the forefront of this process, while regional markets significantly lagging behind them). This, in turn, makes development of relatively universal systemic tools particularly challenging for policy-makers, particularly for local real estate markets that are considered “narrow” (i.e. characterized by the very limited demand, low level of development and available transaction data as well as elevated information asymmetry);
- Relatively high risk appetite for real estate as an asset class among Russian banks compared to international financial groups (Fedotova *et al.*, 2015);
- Rapidly changing geopolitical environment and various sanctions measures and, as a result, shrinking presence of international players that typically create demand for progressive methods and technologies of valuation and real estate management. On the other hand, there is a potentially suppressed demand for such expertise among Russian companies given lower prospects of capital raising on international markets that typically reward higher level of development of such expertise in company’s intangible assets portfolios.

At the same time, we believe, that significance of real estate markets studies and their impact on financial stability is amplified given their systemically significant nature, particularly under current challenging circumstances. There is also an additional degree of significance attached to developing and maintaining such expertise within the banking sector, given potentially shrinking presence of such expertise elsewhere as well as critical role that banking institutions’ stability plays in the economy.

4. BASIC DEFINITIONS OF REAL ESTATE ACCOUNTING AND VALUATION OF BANKING REAL ESTATE IN RUSSIAN FINANCIAL INDUSTRY

Accounting and valuation of banking real estate in Russia is regulated by the Central Bank of Russian Federation, Regulation #448-P “On Credit Institutions’ Accounting of Fixed Assets, Intangible Assets, Real Estate Temporary not Used in Operational Activity, Long-Term Assets Held for Sale, Inventories, Means and Objects of Labor of Undetermined Purpose Obtained under Compensation or Pledge Agreements”, effective from 01.01.2016 (hereinafter referred to as 448-P, (Bank of Russia Regulation 2014)).

According to paragraph 4 of 448-P, determination of fair value of fixed assets, intangible assets, real estate temporary not used in operational activity, long-term assets held for sale, inventories, means and objects of labor of undetermined purpose obtained under compensation or pledge agreements is undertaken in accordance with IFRS 13 “Fair Value Measurement”, which was endorsed together with other IFRS standards by the Government of Russian Federation in 2011:

As per IFRS 13, paragraphs 61-66, market approach valuation methodology contains reference to multiplier market models: “The market approach uses prices and other relevant information generated by market transactions involving identical or comparable (i.e. similar) assets, liabilities or a group of assets and liabilities, such as a business. For example, valuation techniques consistent with the market approach often use market multiples derived from a set of comparables. Multiples might be in ranges with a different multiple for each comparable. The selection of the appropriate multiple within the range requires judgement, considering qualitative and quantitative factors specific to the measurement. Valuation techniques consistent with the market approach include matrix pricing. Matrix pricing is a mathematical

technique used principally to value some types of financial instruments, such as debt securities, without relying exclusively on quoted prices for the specific securities, but rather relying on the securities' relationship to other benchmark quoted securities.».

Stated provisions of IFRS 13, in our view, de facto ignore provisions contained in Russian legislation regulating valuation methods and process in Russian Federation, which operate with such definitions as a "market" value or "cadastral" value, but not "fair" value of real estate assets. Aside from that, regulator states that banking institutions determine methods of fair value measurement in internal standards or other internal documents, which also runs contrary to valuation legislation. Quite possibly, such legal inconsistencies will be addressed in the future to avoid facilitating corruption and economic conflict of interests of market participants. For the purposes of this study, we will therefore operate under the assumption that differences between "fair" and "market" value definitions are negligible and both definitions can be used interchangeably.

For the purposes of the further discussion, we need to consider basic definitions of various of types of bank's balance sheet that can potentially contain real estate assets according to 448-P.

- In our assessment, real estate on Russian banks' balance sheets is most commonly held within three major categories, which we will discuss further in more details:
 - fixed assets;
 - real estate temporary not used in operation activity;
 - long-term assets held for sale.
- **Fixed assets.** Real estate asset is considered a fixed asset if it has a material form (i.e. tangible asset), its intended use by the credit institution is for the provision of services or administrative purposes for at least 12 months from the date of classification. Sale of such asset is not planned within 12 months, in addition the following set of criteria needs to be met (simultaneously):
 - asset can provide economic benefits to the credit institution in the future;
 - asset value at recognition can be safely determined.

- **Real estate temporary not used in operation activity** (hereinafter referred to as **NVNOD** after Russian abbreviation of the same – Nedvizhimost' Vremenno Neispolzuemaja v Osnovnoy Deyatelnosti). Asset (or part of the asset – land parcel, building or its part or both) is classified as NVNOD, owned by the credit institution, received by the credit institution as part of its activities under credit institution charter and intended to generate either rental income (excluding, however, financial leasing) or capital appreciation of the asset or both, excluding however uses within credit organization as means of labor for the provision of services, administrative purposes, security measures, protection of environment or sanitation and for the purposes of meeting various technical regulations. Asset disposition should not be planned within 12 months from the date of classification of the asset as NVNOD.

Asset should also meet the following set of criteria (simultaneously) to be classified as NVNOD:

- asset can provide economic benefits to the credit institution in the future;
 - asset value can be safely determined.
- **Long-term assets held for sale.** Fixed assets, intangible assets, real estate temporary not used in operational activity, means and objects of labor of undetermined purpose obtained under compensation or pledge agreements are classified as long-term assets held for sale if reimbursement of their value will take place within 12-months period through the sale of the asset from the date of classification of the asset as long-term asset held for sale and not through the continued use of the asset. The following set of criteria also needs to be met:
 - long-term asset is prepared for immediate disposition in its current state in prevailing market conditions comparable assets;
 - decision regarding sale of the asset is made (long-term asset disposition plan is approved) by the head of the credit institution (or his replacement or other authorized person);
 - credit institution is looking for a buyer at a price comparable with asset fair value;

- actions of the credit institution required to complete disposition of the asset (its disposition plan) demonstrate that alterations to disposition decision or its cancelation are not likely.
- If asset contains several parts (components) with significantly varying useful life durations, each part (component) is recognized as separate **inventory object** if its value comprises significant part of the overall fixed asset value. Part (component) may have a material form or **represent expenses for major repairs or technical inspection of the asset**, irrespective of whether any replacement of the elements of the asset takes place. Expenses for major repairs or technical inspections are recognized as separate part (component) of the asset only if they happen on a recurring basis during useful life of the asset.
- **Aggregated asset value.** Aggregated asset value is defined as a sum of the items' values integrated into one accounting unit by common characteristics and their intended use. Credit organization is within its rights to integrate several items with common characteristics and intended use, which are separately considered immaterial.
- **Useful life of the asset.** Useful life is defined as a period of time when credit organization retains the asset for the purpose of extracting economic benefits. Real estate value is reimbursed throughout useful period of the asset by accrual of depreciation. Useful life period is determined by the credit organization based on the following:
 - anticipated period of the asset use based on its assessed productivity or capacity;
 - anticipated physical deterioration of the asset, depending on its operating mode, natural conditions and aggressiveness of the environment in which asset operates, maintenance schedule etc.;
 - legal and regulatory limitations on the use of the asset;
 - obsolescence of the asset, resulting from improvements in industrial process or as a result of the changing demand for the services derived from the asset.
- **Value at recognition.** Value at recognition for real estate assets received on a reimbursable basis, is recognized as a sum of actual costs incurred by the credit organization during asset construction, creation (production) and acquisition, excluding value-added tax and other reimbursable taxes.
- Until such moment that asset is ready for the use by the credit organization in accordance with credit organization management plans, actual costs incurred by the credit organization are recognized as **fixed assets unfinished capital expenditures** and categorized into separate group within fixed assets as well accounted separately on the balance sheet account #60415 "Expenditures for construction, creation (production) and acquisition of the fixed assets".
- **Depreciation.** Depreciation is defined as systematic repayment of the asset depreciable value during its useful life period. Depreciable value is determined as either value at recognition or revalued amount minus calculated liquidation value. Fixed assets represented by land parcels are not depreciated. Real estate temporary not used in operational activity and accounted on the fair value basis is not depreciated. Long-term assets held for sale are not depreciated.
- **Calculated liquidation value.** Calculated liquidation value is defined as amount, which credit organization would receive by the end of the asset useful life period by its disposition minus estimated disposition costs. Calculated liquidation value, useful life period and depreciation method are revised at the end of every reporting year.
- Future **costs for fulfillment of liabilities for dismantling, liquidation and environment restoration** on occupied land parcel should be assessed by the credit organization and included as part of the fixed asset value at recognition so that the credit organization could reimburse these costs during asset useful life period, even if such costs are incurred at the end of of the asset useful life period. These costs are required to be recognized as **non-credit estimated liabilities** and accounted for on balance sheet account # 61501 "Reserves – non-credit estimated liabilities". Aforementioned liabilities are accounted for on a discounted value basis using discount rate that factors in prevailing financial markets conditions and premiums

specific to these risks and which were not factored in the future costs calculation.

- Credit organization may use one of **two methods of valuation of its real estate assets** for the groups of similar assets: value at recognition minus accumulated depreciation and accumulated value impairment or at revalued amount.

In accordance with **accounting model at revalued amount**, fixed asset with fair value that can be safely determined must be accounted for at revalued amount after asset's initial recognition. Revalued amount is understood as the asset fair value on the date of revaluation minus accumulated depreciation and value impairment. Expenditures for construction, creation (production) and acquisition of the fixed assets, accounted for on the balance sheet account #60415 are not subject to revaluation.

In determination of revalued amount for the fixed assets, a variety of sources of information can be used, i.e.: prices for comparable assets on active market, prices published in the media or professional literature, expert judgements and so on.

- Credit organization approves, as part of its accounting policy, one of the following methods of its real estate assets revaluation accounting:

- **proportional recalculation of the fixed asset value**, reflected on the balance sheet on the reporting date as well as accumulated depreciation of the asset, which is carried out by applying recalculation coefficient. Recalculation coefficient is defined as fair value of the asset on the date divided by its book value minus accumulated depreciation on the same date. Under this accounting method, difference between book value of the asset reflected on the balance after revaluation and recalculated asset's value using coefficient equals asset fair value.

- **reduction of the revalued asset amount**, reflected on the balance sheet on revaluation date by the accumulated depreciation with subsequent recalculation of the revalued amount to assets fair value. Under this accounting method, book value of the asset, reflected on the balance sheet on revaluation date equals to its fair value, while accumulated depreciation equals zero.

- **Restoration of the real estate asset** may be carried out via **repairs, modernization or**

reconstruction. Costs incurred by the credit organization for restoration of real estate temporary not used in operational activity via repairs are recognized within the same period they take place as current expenditures. Costs incurred for restoration of real estate temporary not used in operational activity via its modernization or reconstruction are added to asset's book value.

5. STRUCTURE AND VALUE ANALYSIS OF RUSSIAN FINANCIAL INDUSTRY REAL ESTATE ASSETS

As demonstrated in the Table 1, which is based on the analysis of Russian banking system as disclosed by Bank of Russia (i.e. Bank of Russia Form 101 on Russian banks 2016-2018), as of the end of 2017 **book value of real estate assets of all types outright held by the Russian banks amounted to 1,07 trillion rubles** (at fair value in accordance with 448-P), which equaled **1,26%** of the total Russian banking system assets. Both the absolute amount and its share of the total banking system assets demonstrated stability throughout 8 quarters included into the dataset (spanning 2017-2018). Variation in total real assets held on Russian banks books was between 1,04 and 1,08 trillion rubles, while in total banking assets varied between 1,26% and 1,33% of the total assets (variation, most likely, is not so much due to acquisition or disposition of real estate assets by the banks, but due to revaluation practices, which we discuss further). It is noteworthy that aggregate book value of the real estate assets on banks' balance sheets did not decrease simultaneously with the number of credit organizations in the banking system (which decreases given consolidation of the Russian banking sector), but actually increased by almost 35 billion rubles, which in our opinion demonstrates that real estate assets tend to concentrate within fewer large banking institutions.

Book value of the real estate held as fixed assets amounted to 811,83 billion rubles (or 75,8% of all real estate assets outright held by the Russian banks), out of which 16,91 billion rubles corresponded to land book value.

Book value of the real estate held as long-term assets held for sale is estimated at roughly 73,77 billion rubles (or 6,9% of all real estate assets held outright by the banks).

Finally, real estate held as NVNOD (real estate temporary not used in operational activity), estimated at

Table 1: Analysis of Selected Balance Sheet Chapters of Russian Banking Institutions Based on the Central Bank of Russian Federation Reporting Forms (Form 101)

Total	Banking system total as of reporting date, billions of rubles									
	Balance sheet account	Balance sheet account #	01.04.2016	01.07.2016	01.10.2016	01.01.2017	01.04.2017	01.07.2017	01.10.2017	01.01.2018
Fixed assets	Fixed assets (excluding land)	60401	1 365,20	1 368,84	1 360,30	1 368,32	1 268,85	1 274,55	1 319,73	1 324,87
	Land	60404	14,93	15,14	14,46	15,74	16,55	16,31	16,47	16,91
	Expert estimation of real estate as part of fixed assets (60%)		819,12	821,30	816,18	820,99	761,31	764,73	791,84	794,92
	Total real estate as part of Fixed assets		834,05	836,44	830,64	836,74	777,86	781,04	808,31	811,83
Real estate temporary not used in operational activity	Real estate temporary not used in operational activity		144,59	161,23	162,74	163,60	189,43	191,90	201,63	185,25
Long-term assets held for sale	Real estate as part of Long-term assets held for sale (60%)		57,74	62,43	62,54	67,01	71,59	76,57	73,00	73,77
	Subtotal:		1 036,37	1 060,10	1 055,92	1 067,36	1 038,88	1 049,51	1 082,94	1 070,85
	Total assets of Russian banking institutions (Source: Banking sector overview)		81 114,70	79 545,00	79 669,00	80 063,26	79 221,83	80 778,06	82 253,73	85 191,84
	Share of real estate outright held in total assets		1,28%	1,33%	1,33%	1,33%	1,31%	1,30%	1,32%	1,26%
	Real estate temporary not used in operational activity (land)	61905	27,43	38,04	39,36	36,67	54,92	62,74	62,14	58,72
	Real estate temporary not used in operational activity (land), under leases	61906	25,78	27,52	24,50	27,48	27,71	20,43	20,77	15,11
Real estate temporary not used in operational activity	Real estate temporary not used in operational activity (excluding land)	61907	25,67	28,51	32,62	34,53	40,50	41,02	42,86	61,01
	Real estate temporary not used in operational activity (excluding land), under leases	61908	34,93	35,82	37,26	35,64	36,91	34,82	34,94	36,90
	Real estate temporary not used in operational activity – capital expenditures	61911	30,77	31,34	29,01	29,29	29,39	32,89	40,93	13,53
	Real estate temporary not used in operational activity (losses provisions)	61912	4,25	4,14	3,62	9,58	9,30	13,73	14,32	6,43
	TOTAL NVNOD:		144,59	161,23	162,74	163,60	189,43	191,90	201,63	185,25
	Losses provisions as a percent of assets book value		2,94%	2,57%	2,22%	5,85%	4,91%	7,15%	7,10%	3,47%

Table 2: Comparative Analysis of Selected Balance Sheet Chapters of Sberbank PJSC and VTB Group Banks (VTB Bank PJSC, Bank VTB 24, BM Bank) as of 01.01.2018, According to Reporting Forms of the Central Bank of Russian Federation (Form 101), Billions of Rubles

	Sberbank PJSC	VTB Bank PJSC, VTB 24, BM Bank
Fixed assets (excluding land), real estate is estimated to comprise 60% of fixed assets	336,85	97,69
Fixed assets (land)	4,33	2,12
Real estate temporary not used in operational activity (excluding land)	0,79	21,29
Real estate temporary not used in operational activity (excluding land), under leases	0,75	8,15
Real estate temporary not used in operational activity (land)	0,2	20,39
Real estate temporary not used in operational activity (land), under leases	0,01	8,4
Real estate temporary not used in operational activity – capital expenditures	0,005	2,96
Real estate temporary not used in operational activity (losses provisions)	0,001	1,06
Real estate as part of long term assets held for sale (estimated at 60% of total long term assets held for sale)	7,9	5,82
Real estate as part long term assets held for sale – losses provisions (estimated at 60% of total losses provisions for long term assets held for sale)	1,19	0,91
Total:	352,03	168,79

“fair” value as per IFRS 13 and 448-P Regulation, was 185,25 billion rubles (or 17,3% of all real estate held outright), including 6,43 billion rubles allocated by the banks for *potential losses provisions*.

Quite evidently, real estate temporary not used in operational activity mostly represents real estate assets repossessed by the banks as part of their bad debts workout strategies. As such, it is not further used by the banks in their day-to-day activities and thereby represents an economic encumbrance on the banking system if not managed properly. To a smaller extent, this category contains real estate previously used in operational activity, but excluded from fixed assets and banks’ operations due to various reasons and not yet disposed of (or repurposed).

The smallest part (13,53 billion rubles or 7,3% of the total NVNOD category) of the banking real estate assets held outright is represented by construction in progress, which given its size contains primarily, in authors’ estimation, real estate development projects repossessed by the banks rather than discontinued construction for the banks’ own use.

Another part of real estate temporary not used in operational activity are real estate assets under current leases (15,11 billion rubles or 8,2% of NVNOD as land and 61,01 billion rubles or 19,9% of NVNOD as real

estate excluding land). Presence of real estate leased out by the banks may in part compensate for overall potential losses, however real estate management does not represent banks core activity and this category needs to be looked at and optimized by the banks carefully.

From the data discussed above, at first, one could conclude that real estate assets held outright (i.e. 1,26% of the total banks’ assets) do not represent a significant portion and therefore do not pose a significant threat of destabilization for banking sector, even under the worst case scenario of the real estate portfolio devaluation. However, further analysis demonstrates significant concentration of real estate assets held outright and corresponding risks within largest banking institutions.

To demonstrate this point, Table 2 contains comparative analysis of book value of real estate assets held outright by Sberbank PJSC (biggest bank in Russian Federation) and VTB Group banks (VTB Bank PJSC, Bank VTB 24, BM-Bank) (second biggest banking group in Russian Federation only to Sberbank PJSC) as of 01.01.2018.

As can be seen from Table 2, total book value of the real estate assets held outright by the these banks

amounts to 520,82 billion rubles or 49% of all real estate held outright by the entire Russian banking system. We also note that portfolio structures of these banks are significantly different from each other.

Diagram 1 illustrates that majority of Sberbank PJSC real estate assets held outright is represented by the real estate held as fixed assets, whereas in VTB Bank PJSC and other VTB Group banks' (VTB 24, BM Bank) case, only 59% of all real estate assets is represented by the real estate held as fixed assets, 4% as part of long-term assets held for sale and the rest 37% is held in real estate temporary not used in operational activity.

We therefore conclude that there is a significant concentration of real real assets held outright in just two of Russia's biggest banking institutions. Further, in

case of VTB Group, real estate assets portfolio structure features significantly higher risks of potential losses (and higher share of inefficient costs) associated with ownership of non-core assets (as compared to Sberbank PJSC). Additionally, risks associated with potential devaluation of the real estate assets utilized outside of their highest and best use concept are estimated to be significantly higher for VTB Group banks compared to Sberbank PJSC.

Example above, provides an additional reasoning in support of the need to develop a comprehensive methodological framework of strategic value management for banking real estate portfolios as part of the banks' capital structure for the purposes of enhancing Russian banking system stability as it is quite clear that two largest banking institutions do not

Book value structure of Sberbank PJSC real estate portfolio as of 01.01.2018

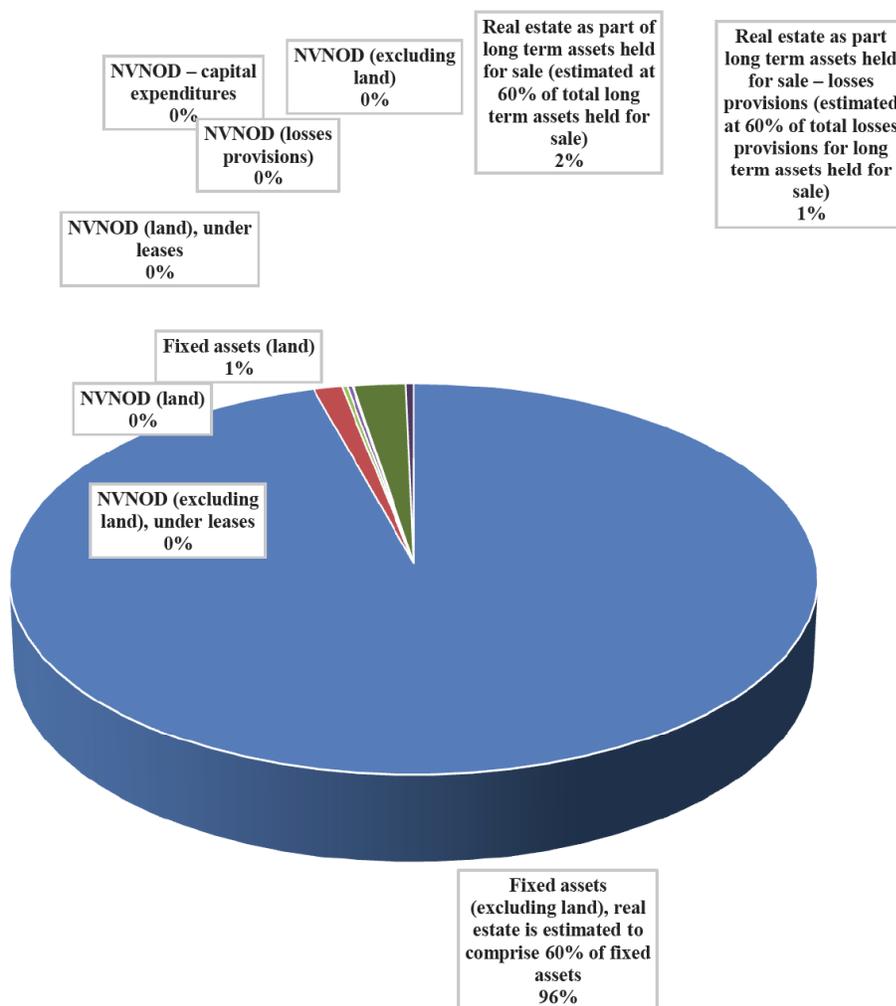


Diagram 1: Book value structure of Sberbank PJSC real estate portfolio.

Book value structure of VTB Group banks real estate portfolio as of 01.01.2018

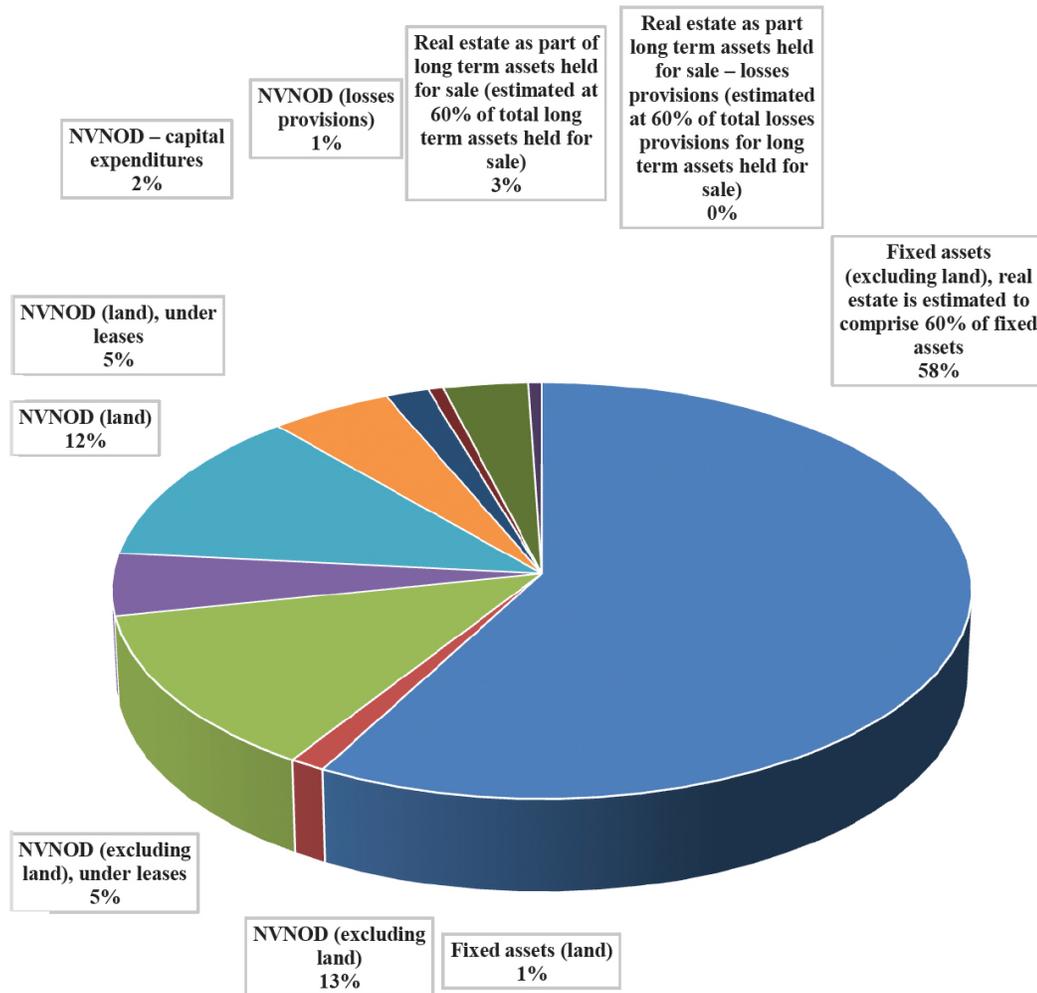


Diagram 2: Book value structure of VTB Group banks' real estate portfolio.

only concentrate large portion of real estate assets held outright by the Russian banks (which also means that they concentrate major share of risks associated with real estate), but also feature materially different real estate ownership models that may potentially have system-wide implications given such level of concentration.

6. DIRECTIONS FOR FURTHER RESEARCH ON STRATEGIC VALUE MANAGEMENT FOR BANKING REAL ESTATE PORTFOLIOS

As demonstrated in the previous chapters of this study, real estate as an asset class plays important and multi-faceted role in the banking system, i.e. real estate owned or rented and used in operational activity comprises considerable portion of banks' capital

(including by being part of the banks' Tier II capital via positive revaluation of the real estate portfolios held as fixed assets (Bank of Russia Regulation 2018)) and represents one of the largest banks' expense items (second only to personnel expenses (Choy 2015) – as part of the banks' real estate portfolios referred to as "corporate real estate" in international academic studies).

On the other hand, real estate repossessed by the banks as part of their bad debts workout strategies also affects banks' real estate portfolios and may create a negative drag on banks' capital, especially when not disposed of in a timely manner due to either difficulties in determining assets' fair value or assets' low liquidity or the regulatory requirements to create provisions for potential losses on the banks' balance sheets (this

category often referred to as repossessed real estate, real estate owned or REO and is clearly differentiated from banks' corporate real estate).

Furthermore, in view of overall crisis conditions and the need to improve banks' capital ratios, banks often identify a separate real estate category as part of their portfolios, i.e. investment real estate, which is intended to generate additional rental income and / or provide capital appreciation thereby improving banks' capital adequacy.

Each aforementioned category of real estate assets within banks' portfolios has its own characteristics and specific management instruments, as well as regulatory and management accounting specifics that differentiate them from each other (i.e. corporate real estate owned is accounted for as part of fixed assets on the basis of value at recognition minus accumulated depreciation, while investment real estate is accounted for on fair value basis often assessed by professional market appraisers).

Real estate multi-faceted role as an asset class in banking sector stability underlines necessity for an in-depth academic study in the field, as well as competent management practices in order to manage risks of the banking industry instability and requires application of systemic approach towards corporate real estate portfolio management, its analysis and risk management.

Proposed strategy of banks real estate formation and development therefore needs to be a comprehensive system of value management aimed at facilitating shareholders' interests by meeting the following criteria:

- 1) Quantitative and qualitative structure of the real estate portfolio is necessary and sufficient for bank's operations as well as aligned with shareholders' approved long-term plan (i.e. bank long-term strategy);
- 2) Current return on capital, invested in real estate portfolio (defined as current economic benefits derived from the portfolio minus sum of capital expenditures and operating expenses) is positive (i.e. corporate real estate portfolio $P\&L > 0$);
- 3) Market liquidity and market value of the real estate portfolio is maximized during disposal through Highest and Best Use concept for local real estate markets (i.e. each property

represents, in ideal case, prime asset within its local real estate market segment);

- 4) All properties comprising real estate portfolio necessary for operational activities and not representing prime assets within their respective local market segments are converted from ownership to leases;
- 5) Design, construction, fit-out and property management are centralized and undertaken in accordance with approved corporate standards ensuring positive effect on bank's image and compliance with contemporary best practices (i.e. sufficient level of technology, innovation, environmental protection and energy and economic efficiency as well aesthetics).

Suggested target indicators for strategic value management for banking real estate portfolios are listed in the Table 3 directly below (Note: the following Table 3 is presented for discussion purposes and prepared by the authors based on experience of analyzing large banking institutions real estate portfolios, i.e. Sberbank PJSC portfolio, which is the largest corporate real estate portfolio among Russian banks).

System of indicators for strategic value management for banking real estate portfolios is comprehensive and balanced (i.e. includes indicators for both operational portfolio and real estate portfolio repossessed by the bank as part of the bad debt workout strategies), it is however can be adjusted and adapted to the particular bank's business model and potential changes in banking regulations.

We also propose to consider bank's customer satisfaction in bank's core services as well as the quality of management of the real estate portfolio repossessed by the bank as part of its bad debt workout procedures as two main drivers of overall real estate portfolio value.

It is, however, important to note that highest and best use of each real estate asset can be different from the same determined as part of the entire portfolio or a group of assets. We therefore suggest that central criteria of highest and best use of maximizing each and every asset value should be replaced with criteria of maximizing value of bank's value a business, which, when achieved, will represent the highest real estate portfolio value as a whole.

Table 3: System of Indicators for Strategic Value Management for Banking Real Estate Portfolios

Indicator	Indicator methodology	Target value
Share of inefficiently utilized real estate assets, %	Usable area of properties in excess of banks' target portfolio (i.e. quantity necessary for banks' operations) divided by total usable area of the bank real estate portfolio	< 5%
Share of illiquid and low investment grade real estate assets owned, %	Usable area of illiquid and low investment grade real estate assets owned, divided by total usable area of the real estate portfolio	< 10%
Operating efficiency	Operating costs associated with real estate portfolio divided by operating income derived from real estate (C / I)	< 1
Return on capital, adjusted for risk of real estate portfolio ownership	Operating income divided by current real estate portfolio book value, excluding revaluation of real estate portfolio and provisions for potential losses	> Inflation rate
β -coefficient (how real estate portfolio measures against the real estate market?)	Weighted average of total market value of the real estate portfolio market value divided by average market prices in respective market segments	>1,20%
Group of the indicators of real estate portfolio size repossessed by the bank as part of the bad debt workout procedures	6.1. Size of the real estate portfolio repossessed by the bank relative to operational real estate portfolio 6.2. Size of the real estate portfolio repossessed by the bank relative to bank's total assets	6.1. <30% 6.2. <0,5%
6. Group of the efficiency indicators for real estate portfolio repossessed by the bank as part of the bad debt workout strategies	7.1. Real estate portfolio turnover 7.2. Recovery rate for bad debt	7.1. Average duration of the real assets residing on bank's balance sheet <1 year 7.2. According to industry practice, but generally above 60%

On the basis of the above, it is therefore proposed to understand highest and best use of the bank's real estate portfolio (as a legally, physically and economically complex entity), such use of each property comprising overall portfolio that maximizes bank's value as a business by optimal allocation of the bank's real estate assets.

7. SUGGESTIONS FOR DEVELOPMENT OF TACTICAL METHODS AND INSTRUMENTS OF BANKING REAL ESTATE PORTFOLIOS VALUE MANAGEMENT

Given demonstrated positive link between the real estate markets' volatility and corresponding financial stability, we believe it is necessary to study subject further and resolve a set of academic and practical problems aimed at creating consistent methodological framework for managing large, geographically distributed banks' real estate portfolios, which is supported by real estate market monitoring, analysis and forecasting ultimately tailored towards maintaining bank's capital in accordance with regulatory requirements.

Table 4 below demonstrates broad directions of further development of theoretical and practical

instruments in order to strategic priorities outlined in Chapter 6 (and based on authors' experience of working with large banking real estate portfolios).

CONCLUDING REMARKS

1. Monitoring, forecasting and methods of managing negative real estate markets volatility impact on financial stability are important factors in preventing banking crises.
2. On an international level, this subject is among the key themes for research, including efforts by the Bank of International Settlements and respective academic and research circles.
3. Currently, there is an objectively presupposed consolidation of the Russian banking sector, which in turn may create corresponding concentration of real-estate related risks within the most systemically significant financial institutions and subsequently drive their appetite for real-estate related risks above what is considered benchmark for international banking groups. At the same time, we observe a certain shortage of relevant research and methodology development on the subject matter.

Table 4: Broad Directions, Methods and Instruments of Banking Real Estate Portfolio Value Management

Directions	Methods	Instruments
1. Determination of quantitative and qualitative structure of the banking real estate portfolio	1.1. Preparation of banking real estate register including properties location, type of property, area, intended use, property title (including land), its legal status (quality of property rights, registration status, i.e. rights are registered or not, status of cadastral records, encumbrances etc.), total costs of property maintenance, property taxes, rental expenses for property (including land), actual occupancy rate of the property	Information and analytical tools: - IT-platforms for real estate portfolios management (i.e CAFM systems for corporate real estate portfolio) analytical databases - analytical instruments for property clustering - data visualization instruments (graphs and diagrams, spatial data visualization instruments)
	1.2. Preparation of spatial diagrams and maps demonstrating portfolio distribution over various economic and geographic regions (i.e. countries, specific regions and/or large cities)	
	1.3. Determination of geographic focus points for drawing down or expanding portfolio and physical bank's presence (i.e. more or less banking offices required to cover specific area of bank's operations)	
	1.4. Determination of properties, which are economically not viable, but socially significant (i.e. fulfilling bank's social responsibility role and commitments)	
2. Real estate portfolio optimization	2.1. Calculation of real estate portfolio actively utilized share	Economic analysis metrics and instruments: - comparative analysis - correlation and regression - cluster analysis - spatial-parametric analysis
	2.2. Calculation of underutilized portion of banking real estate portfolio and further analysis of its efficiency	
	2.3. Prepare recommendations to optimize shares of actively utilized and underutilized portions of the bank's real estate portfolio	
	2.4. Forecast of the future changes in bank's demand for real estate for its operations in view of expanding significance of online banking solutions	
	2.5. Determination of future demand for physical offices by the bank's clients – both corporate and retail	
3. Portfolio efficiency indicators assessment	3.1. Calculation of the rate of return on capital invested in various groups of real estate within the bank's real estate portfolio	Financial analysis instruments: - return on capital rate - liquidity measurements - profitability rates - real estate valuation methods and techniques - management costs calculations
	3.2. Evaluation of liquidity and market value of each property comprising bank's real estate portfolio	
	3.3. Evaluation of liquidity and market value of the bank's real estate portfolio as a whole	
	3.4. Calculation of the costs involved in managing the portfolio	
4. Real estate portfolio legal support	4.1. Formulating standards for legal support of real estate portfolio	
5. Optimization of owned vs. rented real estate ratio	5.1. Determination of optimal rate of owned vs. rented real estate for banking operations based on international best practices and benchmarks (based on the comparative analysis with other banking groups as well as other operators of the large real estate portfolios with developed branch networks)	Legal instruments
	5.2. Calculation of internal rate of rent for properties owned by the bank	
	5.3. Roadmap preparation for transitioning from the current state to the target state of owned vs. rented real estate ratio	
6. Reengineering real estate portfolio management business processes	6.1. Determination of the most efficient business process owners or managing bank's real estate portfolio	Business processes optimization tools: - business processes formalization techniques - business processes audit - business processes modelling techniques
	6.2. Determining methodology for transferring ownership of business processes from current owners to target (i.e. most efficient) owners	
	6.3. Preparation of the methodological support for owners of the delegated business processes	

(Table 4). Continued.

Directions	Methods	Instruments
7. Evaluation and minimization of risks	7.1. Identification and evaluation of risks associated with real estate owned vs. real estate rented	Risk-management instruments
	7.2. Preparation of methodology of risks' minimization	
	7.3. Calculation of β coefficient value for various assets in real estate portfolio	
8. Improvement of existing assets and assets under construction	8.1. Preparation of corporate standards for construction, fit-out and maintenance of all properties comprising real estate portfolio	Technical instruments
9. Instruments for efficient management of the real estate portfolio repossessed by the bank as part of the bad debt workout procedures	9.1. Development of repossessed portfolio KPIs system 9.2. Determination of KPIs target values 9.3. Implementation of KPI system for managing real estate portfolio real estate portfolio repossessed as part of the bad debt workout procedures	Portfolio-level instruments, including mass valuation methodology for revaluation of large homogenous real estate portfolios (i.e. large number of residential properties)

4. Current regulations on valuation and accounting of banking real estate in Russia, in our view, contain certain legal and methodological inconsistencies that may inhibit their ability to fulfill a strategic goal of facilitating financial sector and, in particular, banking sector stability given their connection to systemically-significant real estate markets.

5. Comparative analysis of real estate assets held by the Russia's biggest banks provides an opportunity to evaluate industry-wide risk associated with banks' real estate ownership, identify problem areas as well as outline directions for further research, development of crisis prevention methods and set strategic priorities for development of prospective instruments and metrics for efficient management of banking real estate portfolios.

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