

# Real Estate Review

Volume 34 Number 1

Spring 2005

## **Lifestyle Centers: The De-Malling of Consumerism**

*Krisandra Guidry and Taree Montero*

## **Financing and Valuation Problems of the East German Real Estate Market**

*Michael Von Wuntsch, Georg Knacke, and Gerhard Neumann*

## **Urban Land Use Patterns in a Digitized World: More of the Same? Or Something Radically Different?**

*Alan R. Winger*

## **Tenancy-In-Common Real Estate Ownership: Current Issues**

*Roger P. Sindt and Judith Watanabe*

## **The Pro-Cyclical Behaviour of Players in the Office Market — Interests, Pressures and Possible Alternatives**

*Monika Dobberstein*

## **The Problem of Providing Housing Finance to Low End Low-Income Borrowers in South Africa**

*Laura Ebert*

## **Stability of Dividends: An Empirical Analysis Across REIT Sectors**

*Adam Carr, Margaret L. Gagne, and Tom G. Geurts*

# Financing and Valuation Problems of the East German Real Estate Market

Michael Von Wuntsch, Georg Knacke, and Gerhard Neumann\*

Translated by Kim Edwards-Fukei

## 1. Introduction

The conditions ruling the housing markets in former East and West Germany could not differ more sharply. While West German metropolitan areas benefit from a positive outlook with rising rents and prices, the East German real estate industry is hit hard by dramatic vacancy rates and declining prices and revenue. Although the five new member states of the Federal Republic of Germany were integrated into the West German market economy more than a decade ago, the East German real estate economy is facing a severe crisis. It is now evident that many of the real estate projects initiated either privately or by banks have proven to be unprofitable or bad investments. Very few of the real estate investments are actually producing their originally predicted returns. The extent of the crisis is surfacing only slowly and has yet to peak. It is not unreasonable to assume that in addition to banks and private investors, large building corporations will be affected, possibly with insolvency.

This article will focus on the impact of valuation methodology and financial account on the one hand and factors specific to the East German real estate markets on the other. This article is based on the premise that market-driven valuation and financing were virtually never applied to East German real estate transactions. We start out by describing the East German idiosyncrasies that impact investors and go on to analyze customary methods applied to property market values. Following a review of

---

\* Dr. Michael von Wuntsch is Professor at HTW – University of Applied Sciences in Berlin/Germany. He is giving lectures in International Taxation and Corporate Valuation. His research works focus on International Tax Competition and Tax Harmonization in the European Union. Since March 2003 he is also a member of the international project “German Foreign Direct Investments – Ireland versus Eastern Europe” that is being financed by the Royal Irish Academy. Georg Knacke is Economist and lecturer at Technical University Berlin. Gerhard Neumann is financial analyst at Volksbank in Berlin.

the procedures that determine capitalized earnings value as stipulated by the German “Wertermittlungsverordnung,” Valuation Regulations, we will comment on an alternative concept, which focuses on the real cash flow of a specific property. In closing, the article will present a critical assessment of the financing practices involving East German real estate projects following the demise of former East Germany.

## **2. Initial Circumstances in Berlin and East Germany**

### **2.1. ‘Building Boom East’ and its Implications**

Following the reunification of Germany, the housing market presented itself as highly diverse. On the one hand, the rental market in the new states confronted a housing shortage where the demand for housing greatly outnumbered the supply. This applied especially to large modern and newly constructed apartments and single-family homes but also to older apartment buildings featuring updated amenities. Having said that, vacancies skyrocketed by 1990, with approximately 420,000 vacant apartment units predominantly in old construction. To make matters worse, a great portion of the old construction was dilapidated due to neglect and failure to modernize.

Housing policy responded with several different types of aid and subsidies for the new states:

- Funding for urban improvement
- Funding for the refurbishment of ‘prefab’ housing
- Incentives for subsidized housing
- Incentives for private ownership

Of particular interest are incentives for investment financing such as interest-free or low-interest loans or the “Eigenkapitalhilfeprogramm,” the German assistance program for the creation of personal equity with the common goal of improving the regional economic structure.

The objective was to address deficiencies and to satisfy the demand for ‘contemporary,’ up-to-date living. In response, 820,000 newly constructed apartments were built between 1991 and 1999. Approximately 700,000 of these were subsidized new construction. The “KfW-Programme,” the German reconstruction loan programs, alone were worth DM 10.5 billion in subsidies. Additional capital allowances (depreciation) in accordance with the “Fördergebietsgesetz,” the German Statute for Subsidized Development Areas in former East Germany, of June 24,

1991 presented an enormous impact on investment decisions. Between 1991 and 1999, the availability of considerable tax write-offs undoubtedly contributed to the investment boom in construction and the purchase of real estate in the new states and Berlin. The construction boom was financed with significant expenditures from the public sector. Although this improved the availability of housing with reasonable rent, it also caused a pseudo-boom in the East German construction industry (cf. *Structural Changes Within the Housing Market in the New States*, Report of the Commission on behalf of the Fed. Dept. for Transport, Construction and Housing, November 2000, p.10 et sqq.)

Initially, expenditures for the special write-offs in accordance with the German Statute for Subsidized Development Areas (SDA) totaled up to 50 percent of the acquisition cost or manufacturing cost for the acquired or manufactured commodities. Investors were able to take advantage of the special write-offs within four years after the purchase or construction. Depreciating immovable commodities and construction operations in the new states and Berlin were eligible for tax privileges. This included acquisition and manufacture of depreciable immovable assets and also their modernization and miscellaneous anticipated construction work on them. Accelerated write-offs during the investment phase resulted in losses that investors were able to utilize as tax breaks. Investors and property developers anticipated this in their calculations. Special tax earnings and anticipated high rents in housing and commercial real estate incurred increased expenses in the acquisition of properties and construction costs.

As a result of significant direct and indirect subsidies, the housing supply in the new states improved considerably, both in quantity and quality. While the number of households increased by more than 300,000, the construction boom more than doubled the supply. Already, imminent warning signs of a heated bubble in the East German construction industry surfaced. In a way, this is also expressed in the gross value added within the East German construction industry. Statistics show that between 1991 and 1995, gross value added (revenues) in the construction industry rose by 94 percent but fell by 28 percent by 2000. The unusual construction boom only shrank in 1998 with cuts in subsidies and the introduction of budget restraints in the public sector. In this sense, the East German convergence process proved to be a 'pseudo-convergence.' (cf. Priewe 2002, p.50).

## 2.2. Privatization in East Germany

Privatization in accordance with the “Altschuldenhilfegesetz,” the German statute for assistance with old debt, played a key role in the new states and Berlin. After the currency reform, state and cooperative housing in former East Germany had incurred debts of approximately DM 36 billion, which grew to DM 59 billion due to interest payable and time delays. Of the approximately 6.6 million housing units in former East Germany, 2.4 million (mostly built after 1960) had incurred differing amounts of old debt.

As a result, the implementation of essential modernization and refurbishment was constrained. The German statute for old debt assistance was intended to provide quick relief for envisioned privatization processes and to boost modernization and refurbishment efforts. The goal of this statute was to bring administrative and legal clarity to a number of issues ranging from mistakes in connection with registration of title deed to unsettled estate issues due to the number of restitution claims.

Various conditions govern the partial waiver of old debt:

- In accordance with article 4, paragraph 4 of the German statute, real estate developers who take advantage of the legal provisions are eligible for partial tax relief granted by the German Reconstruction Loan Corporation provided the developer agrees to the sale of property and proportionate payments of the consideration received for disposal.
- In accordance with article 4 of the Statute, 15 percent of all housing units are to be made available for disposal to the tenants in order to stimulate individual ownership (privatization favoring tenants).

A number of different suggestions and models (including the intermediate purchaser model, cooperative model, and the dissociation model), as well as new standards, surfaced in subsequent years in order to foster privatization.

A lot of debate centers on whether or not privatization in East Germany was successful. The Ministry of Construction supported privatization efforts as early as 1997. At the time, 60 percent of real estate developers adhered to the 15 percent requirement, i.e. selling off 15 percent of their inventory. Current sales quotas still range between 57 to 61 percent. From 1990 to 1996, approximately 220,000 apartment units formerly the property of communities, municipal real estate developers and housing cooperatives were sold off in the new states. 74 percent of

all of the 2.2 million reassignment claims were settled. Between 1992 and 1996, the privatization agency “Treuhand Liegenschafts Gesellschaft” (TLG) sold a total of 80,290 apartment units. 62.3 percent were sold to tenants and 37.7 percent to others. Some aspects of the tenant-centered privatization efforts were unsuccessful, however. This is particularly true of prefabricated high-rise apartments because a lot of tenants had already abandoned their prefabs in the meantime. Pricing also contributed to the failure of tenant-centered privatization. The Ministry of Construction envisioned tenant-friendly sales prices. Accordingly, sales prices for unrefurbished prefabs were pegged between DM 300 to DM 500, while refurbished prefabs were to sell for DM 1,500. Unfortunately these prices could not be realized on the market. The following quote illustrates this dilemma quite well: “Why would anyone from Schwedt purchase his coop apartment? If he had a secure and well-paying job, he would be able to afford a small new house instead of a prefabricated high-rise apartment. And if he didn’t have a job, well, then he would’ve moved somewhere else by now.” This is exactly what 52,000 residents in former East Germany did, i.e. one out of seven left after the reunification. (Cf. Stimpel, 1996).

Berlin’s municipal housing societies manage 233,000 prefabricated high-rise apartment units in East Berlin. Many of these units purchased with subsidies by the State of Berlin and the Reconstruction Loan Corporation were sold to intermediaries. Eligible tenants only purchased a relatively small percentage of those. By the end of 1999, more than 440,000 apartment units were privatized. Of those, intermediaries and investors bought 30,885 units, tenants and owner-occupied third-party buyers purchased 6,107 units and cooperatives and tenant associations purchased 7,398 units. These figures demonstrate that the local government failed in its objective of shifting Berlin from rental housing to metropolitan home ownership.

### **2.3. Outcome of Ten Years Housing Policy**

Although the housing situation in East Germany has clearly improved, the investment policies of the last ten years remain plagued by vacancies, falling revenues and price levels. It comes as no surprise that investment shares in East German construction and housing in particular have been depressed since the mid-nineties. A case in point is the 13 percent vacancy rate, totaling 1 million apartment units. (cf. Franz 2001, p.27 et sqq.). The Association of Berlin-Brandenburg Residential Housing Developers (“BBU,” a membership corporation) estimates that for May of 2001, 150,000 of the 1.23 million apartment units were vacant. Some view the

demolition of entire apartment complexes as a means of adjusting the status quo. The Federal Government has already allocated DM 700 million for demolition purposes over the coming ten years. Local communities and municipalities will have to contribute their share, however. 28 BBU-members report vacancies higher than 15 percent, some are about to declare insolvency.

The vacancies are the result of the dramatic changes sweeping the new states. The following will illustrate this point (cf. the Federal Government's Agenda on Urban Rebuilding-East for the Improvement of the Urban and Housing Market in the New States, 2001):

- Massive shortage of employment and a resulting under-employment rate of 23-25 percent
- Population migration especially from primarily industrial regions: Between 1997-1999, 4.9 percent of East Germans from Thuringia, aged 18-25 migrated to the West (Kühn, 2001, p.11)
- Move to the suburbs due to property ownership
- Unrestricted urban sprawl of bigger cities
- Dilapidated inner cities, a legacy of former East Germany
- Obstruction of restoration efforts due to restitution claims

This situation affects not only housing corporations in Brandenburg an der Havel, Lauchhammer or Schwedt but also in Berlin. The housing corporation of Marzahn already recorded losses of DM 400 million that were incurred by its prefab units in 2000 and predicts losses of another DM 520 million in 2004. Vacancies affect unrefurbished units in particular. There are no plans for rent hikes and thus no increased revenue projections via the refurbishment of current inventory. Out of 32,000 apartment units, 10,000 will be put up for sale in order to maintain corporate liquidity.

H. P. Plettner, Head of the German Real Estate Auctions AG noted that the price for single-family dwellings dropped by 30 percent in 2001. Not even prime locations were spared by falling prices. In fact, prices paid were pegged below standard land values. Price trends were similar for centrally located properties in Berlin. A significant drop in demand caused standard land values of DM 600-800 (for 2001) to fall to DM 200 per square meter at times. The Board of Appraisers for Property Values talks of regressive revenues totaling almost 20 percent (for the previous

year). Vacant lots, apartment ownership and partial ownership incurred losses in revenue of up to 22 percent and developed properties experienced a 5 percent drop (cf. Results of the Standard Land Value Discussion on the recorded date of January 1, 2001).

### **3. Valuation Problems Affecting the New States and Looking Towards West German Methods in Calculating Market Value**

Former East Germany lacked methods for calculating value that would be comparable to those utilized by West Germany or other Western industrialized nations. Market value analysis in East Germany was only performed with respect to private property transfer based on a price decision of March 1987 and supplemental singular district guidelines. In the transfer of property, i.e. the actual property transfer between combines, the government and the municipalities, the sale was conducted as a simple property transfer between contracting parties. The “Grundmittelrechnung,” the East German basic resources calculation, was applied as a reference in calculating gross value, for example, costs for new construction. Then the current net value was established by applying the write-offs. (cf. Keunecke, 1990).

Needless to say that neither market-oriented valuation systems nor real market prices would develop in East Germany. The main problem in valuating the new states after the reunification was the absence of a mature real estate market and real estate companies. These developed only very gradually.

Although some transformation did occur, it was ultimately unsuccessful due to projections for a relatively speedy economic adaptation and recovery in the new states. Previously mentioned subsidies were intended merely as temporary, short to mid-term measures with the goal of establishing self-sustaining economic dynamics. This optimistic outlook greatly influenced a lot of investment decisions. These projections also affected real estate economics as valuation and financing of real estate and real estate development corporations were unwarranted.

We believe that critical inquiry into established valuation methods and a stronger property-specific real cash flow at the time might very well have contained the overvaluation. We will discuss this further. Before detailing the preferred instruments of discounted cash flow analysis, we would like to discuss conventional methods used in Germany in assessing real estate and real estate development corporations, in particular.

The objective of an appraisal is to determine market value, i.e. current market value. The market value depends on the condition and quality of a



particular piece of real estate, the economic conditions in general and the conditions involving a particular sub-segment of the market. In determining market value, appraisals play an important role. The market value analysis is a “standardized method” in accordance with the “Wertermittlungsverordnung, (WertV),” the German appraisal regulations, and reflects the price at the time of the analysis. The market analysis reflects legal proceedings und accurate facts, various conditions pertaining to the property and its location or other objects under investigation without regard to undue, unusual or personal factors.

In compliance with article 7, paragraph 12 of the “Wertermittlungsverordnung,” the German appraisal regulations, the market value is established with an appraisal. There are different appraisals methods, i.e. the income method (capitalization method), the depreciated replacement cost approach (cost approach) and the sales comparison approach (also known as market data approach). Sometimes one or more of these methods are utilized to arrive at market value. If the ultimate market value is based on more than one approach, then the results of all respective methods must be reconciled, while special attention must be given to the current real estate market and the appropriateness of the methods used. In determining market value, care must be taken and all allowances and deductions must be applied. We would like to focus on the income method approach and the sales comparison approach. In Germany, the depreciated replacement cost approach is used primarily in appraising non-income generating properties, i.e. single-family residences or duplexes.

The income method approach in accordance with article 15 et sqq. of the “WertV,” the German appraisal regulations, determines the value of the improvements separately from the land value. Land value and the value of the improvements determine income value if the income value cannot be determined in accordance with article 20 of the “WertV,” the German appraisal regulations (appraisal of special cases). The income method values the revenue of a property, which was acquired with the intent to generate income. This method is two-tiered. First of all, the sales comparison method is used to determine the land value, regardless of whether or not the property contains any improvements. In Germany, expert committees determine land value. The committees base their decisions on the purchase price of the previous year. The experts take into consideration adjustments such as price reductions and surcharges because land values represent average prices for land in different regions. Secondly, projected revenues determine the present value of the improvement.

The “WertV,” German appraisal regulations, are based on the premise that land is permanent, whereas improvements experience depreciation

and wear. Therefore, land value and improvement value are appraised separately from improvement value both in the income method and the property value approach. Finally, both values are added up and form the basis in sales and purchase negotiations. The following illustrates the steps involved in appraising the capitalized earnings value. (cf. Leopoldsberger 1999, p.37):

Annual gross earnings of the property  
*less*: operating expenses  
 = net income of the property (based on potential earnings)  
*less*: land value interest (applying real estate interest rates)  
 = annual net income of the improvement (building)  
 x duplicators  
 = capitalized earnings value of the property  
*plus/less*: other factors contributing to value  
 = value of the improvement  
*plus*: land value  
 = capitalized earnings value of the property  
*plus/less*: application of other methods  
*plus/less*: idiosyncrasies of the real estate market  
 = market value

It is significant to note that in Germany the land value is included in the analysis of capitalized earnings value. In North America and Great Britain by contrast, the capitalized earnings value of the entire piece of real estate is calculated solely on the basis of cash flow. Rental income serves as the basis from which development costs, i.e. construction costs and incidental expenses, financing costs, expenditure for appurtenant structures, in other words, total expenses are deducted. This method is also known as the residual method (cf. White/Turner/Jenyon/Lincoln 1999, p.121 et qq.). A more advanced version is based on capitalized value and calculates cash flow. This will be discussed further in the discounted cash flow approach below.

The comparison approach is another key method. This approach focuses on comparables, i.e. properties that have significant value-determining features in common. Appropriate land value standards of comparables can also be taken into consideration. The comparison approach is considered the most reliable method, as it can be applied to the entire real estate market, including its sub-segments. In the absence

of suitable comparables, in Germany the expert commission's purchase price inventory would serve as a reference.

In reality, it is not always possible to find comparables. Therefore it is essential to highlight differences between the subject property and its comparables and to apply pertinent allowances and deductions. It is important to consider the following:

- Differences in development costs
- Differences in location and the resulting impact on the comparison approach
- Time factor of comparable prices

The comparison approach refers to the aforementioned problems associated with the appraisal of immature or under-developed markets. After the reunification, the obvious choice for East Germany was to look towards the West German market. Unfortunately in doing so, the idiosyncrasies of the East German circumstances were obscured and accordingly realistic appraisal and financing concepts were hampered.

If we assume that unjustifiably high market value analyses and loan financing with respect to the actual rental income of the subject properties plagued the East German real estate market in general, we need to investigate the valuation methods and quality of finance accounting that were in place at the time. Before making our case, we would like to focus on the relationship between valuation and financing and also examine the peculiarities of the East German economic subsidies in detail.

#### **4. Structure of Capitalized Earnings Valuation (Income Approach) of Real Estate Development Corporations**

##### **4.1. Value as Marginal Price and Capital Market Orientation**

Valuation of real estate development corporations (defined primarily as asset-management corporations with a large inventory of residential, office/commercial real estate) has gained momentum. As previously mentioned, this trend also reflects substantial sales of state-owned housing societies. Since the mid-nineties, debates over the privatization of state-owned housing have heated up. The transfer of ownership of extremely high value real estate inevitably led to questioning the rationale of traditional appraisal methods.

The depreciated replacement cost method and the income method (capitalization approach) as defined by the "WertV," the German appraisal regulations,

were not convincing for a number of reasons. First of all, the depreciated replacement cost method is focused on construction and cost. On the international level, the depreciated replacement cost method is appropriate only for certain types of real estate that cannot be appraised with any of the other methods (cf. White/Turner/ Jenyon/Lincoln 2000, p.155). At the same time, the income method as based on the “WertV,” the German appraisal regulations, is fraught with weak spots as illustrated below:

- The net return analysis, which is based on sustainable yields, is tied to averaging and flat rates. Individual analysis is thus exacerbated.
- The distinction between land value and improvement value causes value distortion when dealing with properties that have large land parcels.
- Real estate interest rates are derived from retrograde purchase prices and are dependent on appropriate expert commissions in the cities and municipalities. They are highly obscure as regards their components such as the inflation rebate, for instance. (cf. Pensel 1993, p.372). Inclusion of median sales prices, standardized annual net returns and the improvement’s replacement value for ascertaining appraisal value are very suspect when applied to the proper valuation of corporations.

When focusing on adequate appraisal methods for real estate developers and real estate companies that primarily gain their revenue either from renting or leasing their own real estate inventory, the purchase and sale of realty or shareholding in other real estate companies, the need for an appraisal approach in line with current investment theory is obvious. Following is an outline of the main components.

Business studies interpret the term ‘market value of a firm’ as the potential price of a company, which may differ from the actual mutually agreed on price. Depending on the purpose of the appraisal, the market value may differ, i.e. occur as marginal price or arbitral price. The marginal price is the basis for negotiations between seller and buyer and represents the minimum sales price for the seller and the maximum purchase price for the buyer. It determines the effective price as a result of negotiations between the two parties. The arbitral price represents the fair and mutually accepted price based upon recommendations of a ‘neutral appraiser.’

The marginal price concept, which forms the basis of modern business valuation as referred to by Münstermann, Busse von Colbe, Sieben und

Moxter says that a buyer who is willing to purchase a business is seeking to gain specific use or revenue returns in his business acquisition. Obviously, a buyer will only pay as much for a business as for a comparable investment that would yield comparable prospective revenues. This is reflected in the capitalized earnings as the sum of all negotiated future success. The capitalized earnings formula can thus be applied to the containment of the seller's marginal price. In order to protect his position by the sale, the seller will want to yield proceeds that, if reinvested well, will generate at least the same returns. In other words, marginal prices are relative, i.e. can only be determined by how much it costs to invest in a comparable. Also, the owner dependency on the use determines the value. In this sense, all variables in the capitalized earnings approach (income method) are based on a subjective value concept. The owner's dependency on future revenues and expenses is determined by his/her specific ability to run a business, the quality of strategic planning, differing valuation of non-financial benefits and differing risk preferences.

The German markets have seen remarkable developments with respect to business acquisitions within the past decade. This has naturally boosted a particular service industry, i.e. M&A, which has long played an important role in the US. In the last few years, real estate markets have witnessed a trend toward global investment strategies. During the nineties, German real estate investors discovered Great Britain, the Netherlands, Luxembourg and North America. Much more than Germany, these countries already possess a dependable purchase and sales mentality and feature shorter financing duration, professional real estate management and the systematic creation of portfolios. Corporate real estate management evaluates real estate inventory systematically and is very much like rational business-oriented decision-making. It is therefore not surprising that real estate financing increasingly aligns itself with international standards and the merits of a strict cash-flow approach and capital market orientation.

The valuation of assets in accordance with the discounted cash flow approach is based on neoclassical capital market theory. According to the theory, the market value of an asset is determined by its fundamentals. Apart from expected future successes, these include returns on investment demands or opportunity costs for the investor. The investor or buyer's return of investment expectation creates the determining comparable for valuation. Increasingly, capital market orientation calls for benchmarks in comparing all capital investments. Value is created only when future reflow beats capital costs. The following paragraphs will elucidate the term capital costs.

Regulations governing typical real estate interest within the German income approach neglect capital cost as a comparable of valuation. The current cash flow is capitalized by applying the real estate interest rate, which is derived from the specific sub-market and differentiated by region and type of property. In this sense, the real estate interest rate merely reflects the current price of the market segment.

#### **4.2. Discounted Cash Flow Method**

Globalization of the real estate economy necessitates an examination of the discounted cash flow method because it dominates international markets. The discounted cash flow method (DCF) determines market value based on discounting future cash flows. In determining the discount rate, the DCF method falls back on abstract capital market models, particularly the capital asset pricing model (CAPM). This is in contrast to the capitalized earnings method (income method). In the final results of market valuation, market value is calculated as value of the firm or value of equity known as shareholder value. The main difference between the capitalized earnings method and the DCF method is that the latter aligns itself with the capital market. Personal taxes are normally not considered when applying the DCF method.

The DCF method is based on the potentially available cash flow of a business and assumes full distribution of profits. Since this definition is dependent on the definition of the relevant cash flow and applicable discounting rates, there is a distinction between the entity approach and the equity approach. The methods differ primarily in type and scale of consideration of third party financing and resulting tax implications. In their study, Copeland/Koller/Murrin subdivided the DCF methods based on their dependency on calculation techniques into equity method and entity method. The focus is on discounting cash flows by using the weighted average cost of capital or cost of equity (cf. Copeland/Koller/Murrin 1994, p.131 et sqq.).

In reality, the entity approach, which is based on free cash flow to the firm, is the most widely utilized DCF approach (cf. Mandl, Rabehl 1997, p.38). The following refers back to this approach. The entity approach is also referred to as the WACC approach due to its dependence on and application of mixed interest. The entity approach, which is based on the operative free cash flow (FCF), aims to provide financing-neutral cash flow in discounting and to measure shareholder equity solely via the discounting rate. In order to achieve this, the FCF is analyzed without external finance measures of owned funds/shareholder equity or borrowed

funds. In analyzing this figure, cash flow from/to shareholder equity and borrowers and also associated income tax is not considered. In valuating future cash flow, the estimated time frame for detailed projections is normally ten years, in addition to the continuation value.

The principle of equity financing and hence desired financing impartiality requires the division into financing and operating activities. In this approach, the FCF is determined as follows:

Earnings before interest and taxes,  
less: Adjusted taxes  
 = Earnings before interest and after adjusted taxes  
plus/less: Depreciation/appreciation  
plus/less: Increase/decrease of long-term reserves  
 = Operating gross cash flow  
plus/less: Decrease/increase in operating working capital  
less: Capital expenditures  
 = Operating free cash flow to the firm

The FCF to the firm comprises only cash flow from operations. Cash flow from financing has no bearing on the amount of the FCF. The difference between operating and financing activities forms the basis in the following illustration and serves to exemplify the procedures for determining shareholder value based on the FCF.

The present value of the FCF realized from operating activities determines the market value of the total capital employed. The total capital of a company is defined as the sum total of all market values, which all shareholders and lenders hold. In utilizing this approach to arrive at the market value of shareholder value, the market value of debt is subtracted from the total capital of the company.

Present value of operating FCF up to the planning horizon  
plus: present value of the continuing value  
 = present value of operating FCF  
plus: present value of non operating FCF  
 = present value of free cash flow  
plus: market value of assets not essential for running the company  
 = market value of entire company  
less: market value of debt  
 = market value of equity (shareholder value)

In applying the entity approach, the market value of equity and debt is always calculated together in one step. Only then is equity value determined separately. This approach requires separate discounting of free cash flow to the firm with a mixed interest rate, the latter of which is derived from interest rates applied in financing equity and debt. This method is also called the weighted average cost of capital approach (WACC). Calculating this mixed interest rate for the duration of the term requires a constant relationship between equity and debt based on market values. The stipulated rate of return from the shareholder value is based on abstract capital market models. The stipulated rate of return serves to express an appropriate risk premium for shareholders. In this context, the capital asset pricing model (CAPM) is the favored approach and has received frequent attention in financing literature (cf. also Brealey/Myers 1984; Weston/Copeland 1992). Cost of debt is determined by considering related tax savings.

Based on WACC analysis, rates for the cost of equity and cost of debt after tax savings are to be determined with the market value of each respective financing category. If only equity-type and debt-type financing forms are involved, a separate market value weight is required for each source of capital that involves cash payments. This results in the following formula for weighted rate of capital costs:

$$WACC = r_D \times (1 - tax) \times \frac{D}{D \oplus E} \oplus r_E \times \frac{E}{E \oplus D}$$

with

$r_D$	=	cost of debt before taxes
$r_E$	=	cost of equity
E	=	Equity
D	=	Debt

The tax saving has to be included as an adjusted factor since free cash flow is discounted prior to the deductions of interest. The advantage of this approach is generally considered to be its desired financing neutrality with respect to FCF and its non-required periodic projection of changes in debt. It is not within the framework of this article to discuss



the numerous implications associated with the application of the entity approach. However, the provision of cost of equity must take into consideration several of the idiosyncrasies associated with real estate developing corporations. These are discussed as follows.

### **4.3 Characteristics of Real Estate Development Corporations**

Real estate development corporations are subject to special conditions, which naturally affect valuation. We will focus on some of these.

- Real estate has a much longer useful economic life than other commodities and is therefore marketable over long periods of time. Constant market adaptations are necessary to address changes in demand and to ensure that the property remains attractive as a rental. Property management plays a vital role here.
- On the whole, the real estate market is characterized by constant demand. The real estate market offers the option of adjusting prices for inflation regardless of any clauses that may secure value. This may lead to a relatively low discount rate. Within the framework of valuation, the options for inflation adjustments of a specific property should be estimated separately, however.
- There are special risks associated with determining the cost of capital. Generally, these include the long-term commitment to capital lockdown and changes in conditions that the location may experience. Specific risks are associated with vacancies and the ability to maintain stable tenancy. This too must be accounted for in a property-specific manner.

In valuing real estate development corporations, it is essential to analyze the various areas of real estate management. These include maintenance, administration and cost management, controlling and financial management and leasing and grounds management. Individual quality standards naturally limit risk. Prospects of future cash flow will, for instance, not incur any or only minor reductions if there is proof of sustainable optimization in rent revenue and safeguards with respect to the building stock. Accordingly, portfolio risk depends on the degree of diversification of the realty while taking into consideration location, type of realty, utilization and degree of development of usable surface area, size and age. Additional factors comprise tenants and tenant sectors. Portfolio selection theory postulates that increased diversification minimizes portfolio risk. This affects the assessment of the cost of equity as a basic factor for valuation.

Projected rent revenue should be property specific and, at the same time, provide for total economic context. This is because the gross value added by other economic sectors and demographic factors affects real estate markets. Projections illustrate that the impact of the market affects property quality by up to 60 percent. This is linked to the utilization of the property and is more applicable to office/commercial real estate than residential property. Rating models certainly facilitate projections. In this context, we would like to refer to the Real Estate Norm (REN) that is used especially in the Netherlands. Here, itemized report forms, which list approximately 200 items that pertain to various appraisal factors, i.e. location and property, facilitate the appraisal of land, improvements (buildings) or building complexes.

One of the major problem areas concerning the appraisal is how to determine the specific cost of equity for real estate development corporations. As previously mentioned, the capital asset pricing model (CAPM) has gained widespread use in the DCF approach and has become an essential tool for business school graduates. According to the model's key assumption, the opportunity cost of equity corresponds to the returns of risk-free 10-year government securities plus the product of the market price of the risk (market risk premium) and the systematic risk of the business (beta) that is to be valued. It follows that the higher the risk of future cash flow in comparison to a risk-free investment, the higher the risk premium for the investor. The market risk premium represents the long-term difference between average returns of risky investments versus the risk-free interest rate. This is expressed as follows:

$$\text{Cost of Equity} = r_f + (E[r_m] - r_f) \times \text{beta}$$

with

$r_f$	=	risk-free returns
$E[r_m]$	=	Projected value of portfolio returns
$E[r_m] - r_f$	=	Market risk premium
beta	=	systematic risk of equity

In order to apply CAPM, certain factors must be ascertained. For German companies, the risk-free interest rates range between 5.8 percent and 7.9 percent. These companies incur a market risk premium of approximately 5 percent. In applying the beta factor, the systematic risk

of a particular company is expressed. A beta describes how the owner's returns from a specific company fluctuate in comparison to average market returns. If the fluctuations in company returns correspond to the fluctuations in market returns (cf. market indices like DAX 100 or S&P 500), the beta factor assumes the value of 1.0. If a particular business investment involves greater risk than the average market returns, then the beta factor is greater than 1.

Based on empirical data, specific beta factors for real estate development corporations were isolated. A study by Arthur Andersen shows that lower risk premiums are confirmed by a relatively low beta. Within a ten year period, the average beta factors for real estate development corporations were between 0.22 and 0.55. Overall, this empirical statement applies to real estate development corporations in the US, Great Britain, France, Spain, Portugal, Scandinavia and the Benelux countries. By contrast, German real estate development corporations that are registered on the stock market show below average beta factors. This is highly intriguing with respect to valuation practice. If approaching beta factors with respect to the portfolio, it will yield excessive cost of equity, which in turn diminishes the value of equity.

### **5. Subsidized Real Estate Financing in East Germany and the Role of the Loan Value**

From an investor's point of view and a bank's in particular, real estate financing represents primarily the financing of collateral loans. These are long-term property-specific and purpose-specific loans secured by full or proportionate entries of liens/mortgage. This type of financing allows for long-term fixed interest rates with durations of up to 25 years. In this way, investors protect themselves from the risk associated with adjustable interest rates. In addition, it enables them to utilize outside capital interest as a constant in their investment computations. Typically, banks obtain these long-term loan funds by issuing long-term obligations. However, to comply with mortgage bank law, banks are required to make long-term deposits to maintain value. By issuing/guaranteeing long-term fixed interest rates, the banks are assured long-term stable value of securities taken in. This is particularly true of real estate. Analogous to fluctuations in the national economy as a whole, price fluctuations in the real estate economy cause fluctuation in value. Banks therefore select as reference parameter the lending value rather than the purchase price or the appraised value.

After the reunification, the East German real estate economy experienced a rather exceptional situation in that the interest rates were generally

subsidized by the state. The multitude of loan programs offered by the state-owned “KfW,” the German Reconstruction Loan Program, serves as an example. In addition, the state promoted a number of subsidies that functioned as substitute equity value, i.e. investment allowances that amount to a percentage rate of acquisition costs and/or construction costs and other investment subsidies that were defined by project such as protection of historical monuments, etc.

With respect to profitability, all state subsidies have the effect of directly increasing the return surplus, i.e. the cash flow. Return disadvantages will, however, only become apparent mid- to long-term. Subsidies constitute one-time payments only, i.e. short-term payments. Normally, these would expire at a pre-determined date. At the end of this period, the returns are based solely on hard market conditions. In essence, this affects the surplus of the actual rent revenues versus the actual costs. Additionally, the final results refer to the total capital employed. In the end it is the market itself that scrutinizes and assesses projected returns. This correlation was previously reviewed in the second paragraph.

Loan value typically falls approximately 20 percent below purchase price, i.e. the appraised value. As pointed out earlier, appraisers generally base the appraisal value on the income approach (capitalized method) in line with the “Wertermittlungsverordnung,” German appraisal regulations. The loan value can be defined as the appraisal value or market value minus the risk deductions specified by the banks. Based on their specific experience, the banks can anticipate, for instance, real estate price fluctuations, vacancy factors in rentals, bearish operational cost developments and regional demand and supply expectations for a particular property. In this way banks create their own risk portfolios in order to balance miscalculations regarding the development of individual assets.

In the past, banks trusted the loan value and calculated their loan amount based on this particular value. Throughout the history of the Federal Republic of Germany, this value has proven itself as a valid stabilizer with respect to cumulative lending processes during economic business cycles. In the past, it sufficed on average to calculate risk reductions of 20 percent. This excludes specific value corrections under special circumstances.

The loan value with its associated risk management has unfortunately been extremely unsuccessful with reference to real estate investing in East Germany. Instead, value corrections incurring heavy decreases of equity were the norm. This led to the restructuring of the “Berliner Volksbank” and the “Berliner Bankgesellschaft.” Other banks were able to

avoid restructuring by mergers with other entities. Banks and other investors were not able to brace the average fall in value of East German real estate with the implemented 20 percent risk reduction. It became evident that the agreed upon property prices, which were typically based on appraisals, were unwarranted. This had tremendous implications for financing provided by banks and private investors because the latter based their decisions on purchase prices. Hence, projected financing assumptions were already unrealistic at the time of financing.

### **6. Assumptions on the Correlation Between Valuation Methods, Value Distortion and the East German Real Estate Market**

Previous itemization of questions regarding methodology and different valuation factors enables us to describe the relationship between the selection of valuation method, possible value distortion and specific developments within the East German real estate markets, at least in theory. It is important to incorporate the introductory statements into the specific developments in East Germany.

First, in the early nineties, real estate investment in East Germany promised extraordinarily high returns. High expectations predicted an economic boom in East Germany and stable Eastern European markets. In addition, state investment aid concentrated on this particular economic region. Highlights include the "Fördergebietsgesetz (FördergebietsG)," the German law of subsidized development areas, the "Investitionszulagengesetz," the German investment bonus law, and discounts for investment financing (no interest or low-interest loans). Eligibility for special markdowns of up to 50 percent of purchase or construction costs compliant with the "FördergebietsG" often led to initial losses in model calculations of long-term real estate projects without incurring any negative implications regarding the investments. This was possible because during the nineties, investors were able to offset losses indefinitely with positive revenues and take advantage of incredible tax savings. As a result, fictitious calculations and appraisals linked together two distinct components: property-specific surplus funds and investor tax savings. The extent to which economic projections were weak caused a shift in favor of one of these two components. Investors increasingly ignored excessively low rental revenues of the properties because they were able to offset losses and take advantage of tax breaks. Simulated profitability thus created a bubble in East Germany.

Secondly, empirical data show that real estate development corporations in Germany continue to base their investment decisions primarily

on profit and book value. However, here high or low adjusted profits are strongly dependent on the application of tax and appraisal law. For years, the appraisal literature has been critical of the book value approach and highlighted the weak correlation of book value and market prices (cf. Copeland/Koller/Murrin 1998, p.106). It goes without saying that the law compliant tax breaks (special write-offs) projected by the model calculations generally failed to yield projected profits. The income approach illustrates that real estate values based on financial gains or book value are relatively low, favoring buyers. This may have contributed to the heating up of the East German real estate market in addition to market value.

Thirdly, with increased global real estate investing, international appraisal and financing standards are gaining more importance. The average German real estate investor first discovered Great Britain, Luxembourg and the Netherlands and then North America. This goes hand in hand with methodic business analyses (due diligence) with respect to stricter cash flow orientation and appraisal of equity value. This trend is gaining ground because of the trend towards harmonizing the European-domestic market and the eastward expansion of the European Union. In this light, the discounted cash flow approach finds an ever-increasing application as an appraisal and tax instrument. Cash flow based appraisals might very well have deflated the real estate speculation in East Germany for two reasons. First, special deductions in determining calculation of cash flow might have been neutralized. This may have resulted in increased market values of equity depending on the rental revenue and costs. Furthermore, the cash flow approach does not include the personal tax burden of the shareholder. If the emphasis were for a specific property to be profitable independently of potential investor tax savings, with concomitant finance calculations, the result would have been a stronger focus on property-specific real cash flow and resulted in negative investment decisions.

### BIBLIOGRAPHY

Arthur Andersen, European Business School: Shareholder Value and Real Estate, 2000.

Brealey, R.; Myers, S.: Principles of Corporate Finance, New York 1984.

Copeland, T.; Koller, T.; Murrin, J.: Unternehmenswert, Methoden und Strategien für eine wertorientierte Unternehmensführung, Frankfurt/New York, 1994.

Ergebnisse der Bodenrichtwertberatungen zum Stichtag 1.Januar 2001, in :Das Grundeigentum Spezial 2001.

- Franz, P.: Leerstände in ostdeutschen Städten: keineswegs nur ein wohnungspolitisches Problem; in: *Wirtschaft im Wandel*, Heft 2/2001.
- Keunecke, K.: Die Bewertung von DDR-Grundstücken, in: *Das Grundeigentum* Nr. 7/1990.
- Kühn, W.: *Thüringen – ein Abwanderungsland. Eine Studie des DGB Thüringen*, Erfurt, 2001.
- Leopoldsberger, G.: *Kontinuierliche Wertermittlung von Immobilien*, 1999, S. 37.
- Mandl, G.; Rabel, K.: *Unternehmensbewertung: Eine praxisorientierte Einführung*, Wien, 1997.
- Moxter, A.: *Grundsätze ordnungsmäßiger Unternehmensbewertung*, Wiesbaden 1983.
- Pensel, J.: Bemerkungen zur Bewertung von Grundstücksunternehmen, in: *Die Wirtschaftsprüfung*, Heft 12/1993, S. 365 ff.
- Priewe, J.: *Ostdeutschland 2010 – Perspektiven der Investitionstätigkeit*, Düsseldorf, 2002.
- Programm Stadtumbau Ost der Bundesregierung zur Verbesserung der Stadt- und Wohnungsmarktentwicklung in den neuen Ländern, 2001.
- Stimpel, R.: Privatisierung? Null, in: *Wochenpost* Nr. 32 vom 1. Aug. 1996.
- Weston, J.F.; /Copeland, T.: *Managerial Finance*, Fort Worth, 1992.
- White, D.; Turner, J.; Jenyon, B.; Lincoln, N.: *Internationale Bewertungsverfahren für das Investment in Immobilien*, Wiesbaden, 2000.
- Wohnungswirtschaftlicher Strukturwandel in den neuen Bundesländern, Bericht der Kommission i. A. des Bundesministeriums für Verkehr, Bau- und Wohnungswesen, November 2000 S. 10 ff.