

RESEARCH ARTICLE

Turkish building construction contracts vs. FIDIC contracts

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Article History

Received 05 April 2022

Accepted 30 May 2022

Keywords

Contract administration

FIDIC

Risks

Payment terms

Delays

Abstract

Contract administration is one of the most important pillars of a construction project. Its effect starts at bidding and lasts until the end of the guarantee period. A common mistake made by construction owners is structuring the construction contract in a way that minimizes the owner's risks by relaxing the timing of owner payments, including heavy penalty clauses, requesting bank guarantees with indefinite duration, etc. However, a well-balanced construction contract may protect the work against any unexpected events, avoid potential disputes between the parties, and provide contract clauses that are fair to both parties. Being one of the pioneers in this area, the aim of this study is to compare the time and payment-related clauses of the Turkish bespoke construction contracts with standard FIDIC contracts and provide important insights and guidelines to practitioners. In this study, 304 bespoke contracts undertaken in the Turkish building construction market are analyzed and compared against standard FIDIC conditions. The results show that the timing of the payments is similar to those in FIDIC general conditions, yet time extension is mostly awarded for force majeure only. The majority of the projects were delayed in most cases observed independently from the type of contract and wording of the time extension clause. Recommendations are made to structure a more balanced building construction contract and more successful construction project management in Turkey.

1. Introduction

The construction industry is one of the most important industries in any economy because the annual value of construction put in place is very large, the industry employs a very large number of workers as it is very labor-intensive, and it affects the activities of many side industries such as materials, manufacturing, chemicals, etc. All private and public investments are directly or indirectly related to the construction industry. The success of construction projects can be assured if a professional project management approach is

adopted. Efficient project management covers different aspects of project management including scope, time, cost, risk, quality, procurement, stakeholder, communication, human resources and integration of all participants' work [1]. An integrated project delivery system is also very important for construction projects [2]. The nature of construction is such that each project is unique because of its unique conditions such as soil conditions, climate, location, material quality, and even the skills of the labor used. This situation makes a construction project more difficult to handle than any project in any other industry. While

manufacturing industries are more automated, and the production lines are more stable, the construction industry carries more risks due to its structure where the human effect is very strong. In that sense, it is difficult to standardize the construction industry, especially in terms of developing and applying professional project management standards. Nevertheless, the Project Management Institute (PMI), the Construction Management Association of America (CMAA), the American Institute of Architects (AIA), the International Federation of Consulting Engineers (FIDIC), and many other trades and professional associations developed project management and contract administration standards for the construction industry [3]. While some of these contracts are efficient in design-bid-build types of projects, some of them are more suitable for design-build, Engineering-Procurement-Construction (EPC) or Public-Private-Partnership (PPP) projects. Depending on the project's requirements, but mostly based on the project owner's choices, these standard documents are amended by creating particulars of the general conditions.

Turkey, a G-20-member emerging economy, has been developing in the last few decades mostly based on the construction industry. Many public projects including highways, bridges, tunnels, as well as hospitals have been constructed and many private real estate investments have been completed including residential, commercial, retail, tourism and logistics projects. While some of the public projects used international contracts such as FIDIC, most of the private projects were completed by using the contracts prepared by project owners. These contracts take into consideration the common local applications as well as the local cultural issues. Good construction project management is one of the most important pillars of a successful construction project. Its effect starts at bidding and lasts until the end of the guarantee period. A common mistake made by construction owners is structuring the construction contract in a way that minimizes the owner's risks by relaxing the timing of owner payments, including heavy penalty clauses, requesting bank guarantees with indefinite

durations, etc. [4]. Furthermore, heavily amended clauses of standard contract forms or bespoke contracts cause some problems to contractors especially in tight-scheduled projects [5]. However, a well-balanced construction contract may protect the work against any unexpected events, avoid potential disputes between the parties, and provide contract clauses that are fair to both parties [6, 7].

Being one of the pioneers in this area, the aim of this study is to compare the time and payment-related clauses of the Turkish bespoke construction contracts with standard FIDIC contracts and provide important insights and guidelines to practitioners. In this research, the time and payment-related clauses of 304 contracts undertaken in the Turkish building construction industry are analyzed and compared against similar clauses in the standard FIDIC conditions. The results exhibit that the timing of owner payments to contractors in Turkish general conditions is similar to the timing specified in FIDIC general conditions, whereas the time extension clauses in the Turkish general conditions consider force majeure or owner-caused delays only. The majority of the projects examined in this study were delayed independently of the type of contract and the wording of the time extension clause. Recommendations are made to structure a more balanced contract that could lead to a more successful building construction project in Turkey.

2. Literature review

Construction project management covers all phases of a project from inception and feasibility to operation and demolition. The contract draft is included in the bid documents, and the contractors provide their proposals under the contract conditions such as the scope of works, the type of the contract, the payment terms, the duration of the project, the bonding requirements, the dispute resolution methods, the applicable laws, etc. The literature about contract administration has focused on different aspects such as conflicts, claims, and disputes. Fawzy and El-Adaway [8] investigated the FIDIC books and World Bank contracts and developed a guideline for contract administration to

better manage World Bank-funded projects. Hamie and Abdul-Malak [9] analyzed three American-based, two British-based, and one international contract (AIA, FIDIC, Joint Contracts Tribunal (JCT), Engineers Joint Contract Documents Committee (EJCDC), New Engineering Contract (NEC3), and Consensus Docs) relative to the language used to prioritize the contract documents, and to minimize the disagreements that may result in legal disputes; they recommended a model language. El-adaway et al. [10] and El-adaway et al. [11] underlined the importance of the wording of delay and time extension clauses in construction contracts and developed guidelines by evaluating different international contracts including AIA, Consensus-Docs, EJCDC, JCT, NEC, and FIDIC contracts. Another comparative study conducted by Abotaleb and El-adaway [7] compared international contracts from the payment perspective and developed a checklist for payment conditions. The change order process of a construction contract is also an important study area where Syal and Bora [12] compared different standard contracts by focusing on the change order process, direct costs, overhead costs, overhead and profit practices and percentages.

Although there are many research studies about different aspects of contract administration in Turkey, the studies that focus on the comparison of standard and bespoke contracts in the private sector are very limited. Cakmak [13] evaluated the Turkish Public Procurement Authority (KIK) standard contract documents and proposed a new model for the reconstruction of KIK standard contract documents. Yayla [14] compared the FIDIC, AIA and KIK standard forms of contract and concluded that the KIK contract clauses about change orders are inadequate compared to corresponding FIDIC and AIA contract clauses. Çelik [15] compared JCT standard agreements used in the UK and KIK standard contracts used in Turkey from a legal perspective and she found that while JCT covers the best practices of the construction industry and is well balanced, KIK is stricter, better structured, and lopsided with most risks on contractors. Çakmak and Tas [16] analyzed

the problems of standard contracts by comparing AIA and KIK contract conditions and concluded that lack of supplementary conditions, inadequate change order procedures, and weak mechanism of dispute resolution are the main problems of KIK contracts.

No comparison exists between bespoke contracts used by private building construction owners and standard contract conditions. This study aims to fill this gap. For the first time, this study compares bespoke contracts used by private building construction owners in Turkey against standard FIDIC contracts by analyzing 304 signed and implemented bespoke contracts in the Turkish building construction industry.

3. Data and methodology

In this study, 304 bespoke building construction contracts signed in 18 different projects in Turkey were analyzed relative to payment terms and time considerations. The distribution of the contracts by type of project is presented in Table 1. One can see that most projects (65%) involved mixed-use buildings.

Of the 304 contracts analyzed, 8 were main contracts signed between an owner and a general contractor, whereas 193 were subcontracts and 103 procurement contracts. CM-for-fee (Agency CM) was the project delivery system used in the majority (72%) of the 304 contracts analyzed.

Table 1. The distribution of the contracts by type of project

Type of project	Number of projects	Number of contracts	Percentage
Commercial	3	15	4.93
Educational	2	2	0.66
Healthcare	1	1	0.33
Industrial	1	4	1.32
Mixed-use	3	197	64.80
Residential	7	67	22.04
Technological	1	18	5.92
Total	18	304	100%

It was also noted that 168 of 193 subcontracts (87%) and 67 of 103 procurement contracts (65%) were directly signed by the owner, a strong sign of the owner's interference in these contracts. Particularly procurement contracts exhibited high owner involvement in material and equipment purchases.

The projects considered in this study had different scopes of work. As seen in Table 2, the majority (44%) involved electromechanical systems.

According to Table 3, The contract value was less than 5 million TL in 84% of the contracts investigated. Although the average surface area of the projects was around 150.000 sq m, the value of the contracts signed was relatively low because of the owner's policy of dividing the project into many work packages, which causes a big coordination problem at the site.

Table 2. Distribution of the contracts by scope of work

Scope of Work	Number of contracts	Percentage
All disciplines	8	2.63
Geotechnical and infrastructure	14	4.61
Electromechanical systems	133	43.75
Structural	30	9.87
Finishing and fit-out	103	33.88
Facade	16	5.26
Total	304	100%

Table 3. Size of the contracts

Size of Contract	Number of contracts	Percentage
>100 million TL	1	0.33
50-100 million TL	4	1.32
10-50 million TL	18	5.92
5-10 million TL	20	6.58
1-5 million TL	99	32.57
< 1 million TL	156	51.32
Not Specified	6	1.97
Total	304	100%

In Turkey, one of the main problems of the building construction industry is an incomplete design that prevents bidders to make an offer that may match the owner's budget, because the owner's requirements are not set precisely enough at the beginning of the project. It is for this reason that although owners prefer to sign lump-sum contracts, they are forced to award unit price contracts to allow for increases or decreases in the quantities that can be caused by design changes. By getting a commitment from the contractor in the form of stable unit prices for the entire duration of the project, they dump the risk of unit price volatility on the contractor. This situation was indeed reflected in the contracts analyzed. It was observed that 95% of the contracts investigated were fixed unit price agreements and only 4% of the contracts were lump-sum agreements because of an incomplete design caused by uncertainty in owner specifications.

The contract duration was less than 3 years, with 82% taking 1 year or less. One of the main criticisms that building construction owners in Turkey face is the tight schedule they impose on contractors, which may also cause accidents on the building construction site. Only three small-size projects of the 18 projects considered in the study were completed on schedule, whereas 15 projects had at least 3 months of delay and 2 of them exceeded 12 months of delay. Delays also cause budget overruns due to the additional cost incurred in the extended time. It is important to structure a building construction contract to minimize delays and keep costs within budget.

4. Analysis, result and discussion

This study aims to analyze 304 building construction contracts relative to time considerations and terms of payment and compare these bespoke contracts against the corresponding conditions in the standard FIDIC red book. Before making this comparison, it is important to present the general outlines of the bespoke contracts prepared by Turkish private owners and the standard FIDIC contracts.

The bespoke contracts are structured mostly based on the past experiences of the owners, their risk perceptions, and the legal recommendations of company lawyers. Since there are no standards to write a contract, it is observed that the number of clauses in the contracts considered in the study varies from 15 to 52. The most comprehensive contracts have the clauses presented in Table 4.

While the contract with 52 clauses seems to be structured very comprehensively and covers many aspects of an agreement, in practice there may be difficulties in managing such contracts. So, in most contracts, some of the clauses are combined under

the main clause and the number of clauses is reduced to an easily manageable few. More important than the number of clauses, it is important to consider the content of the clauses, the wording of the statements, how they are implemented, and the overall manageability of the contract.

The FIDIC Red Book is one of the most commonly used international contract standards and also has a subcontract edition, both of which are used in this study. With the latest edition published in 2017, FIDIC Red Book contracts are built on 21 clauses as shown in Table 5.

Table 4. Contract conditions in a bespoke contract

No	Contract Clause	No	Contract Clause	No	Contract Clause
1	Parties	19	Unacceptable works and materials	37	The responsibilities of the contractor in the warranty period
2	Definitions	20	Daily reports	38	Final completion
3	Scope of works	21	The rights of workers and subcontractors	39	Final payment
4	Contract amount	22	Responsibilities for work accidents	40	Payments and return of Retainage
5	Performance bond and Retainage	23	Material on-site and work insurance	41	Termination of contract
6	Advance payment	24	Assignment of the contract	42	Contractor default
7	Interim payments	25	Time extensions	43	Death of the contractor
8	Annexes	26	Price escalations	44	Archeological finds
9	Project duration	27	Variations in the scope of the work	45	Intellectual and industrial property rights and guarantees
10	Site hand-over	28	Unit prices, unit price definitions and new unit prices	46	Legal addresses
11	Commencement	29	Transportation	47	Ordinances, regulations and compliance with laws
12	Program and methods	30	Payments for on-site materials	48	Issues not included in the contract and its annexes
13	Handover of the workplace	31	Penalties	49	Confidentiality
14	Taxes and social security	32	The employer's involvement in the works	50	Conclusive evidence
15	Contractor's personnel and equipment	33	Early use	51	Stamp tax
16	Services and the responsibilities of the parties	34	Substantial completion	52	Dispute resolution
17	Execution of the works	35	Cleaning of the site		
18	Monitoring of the works	36	The validity of the performance bond		

Table 5. FIDIC red book second edition 2017

Number	Clause	Number	Clause
1	General provisions	12	Measurement and valuation
2	The employer	13	Variations and adjustments
3	The engineer	14	Contract price and payment
4	The contractor	15	Termination by employer
5	Subcontracting	16	Suspension and termination by contractor
6	Staff and labor	17	Care of the works and indemnities
7	Plant, material and workmanship	18	Exceptional events
8	Commencement, delays and suspension	19	Insurance
9	Tests on completion	20	Employer's and contractor's claims
10	Employer's taking over	21	Disputes and arbitration
11	Defects after taking over		

The contract agreement, the letter of acceptance, the letter of tender, the general conditions, the supplementary conditions, the specifications and drawings, and the dispute avoidance and adjudication board agreement are the main components of a typical FIDIC red book [17]. While FIDIC sets the main standard rules of the contract, it also enables the parties to negotiate the general conditions and amend them by creating supplementary conditions.

The bespoke contracts used in the Turkish building construction industry and the FIDIC red book are compared relative to time considerations and terms of payment under the main subjects shown in Table 6.

4.1. Timing of payments, delayed payments, owner's financial status

In the FIDIC Red Book, the timing of payments is set as 56 days (if not set otherwise) after the Engineer receives the Statement and Supporting Documents. This duration is 70 days in subcontractor agreements. [17, 18]. On the other hand, according to the information in Table 7, 79% of the contracts analyzed allow for payments to be made up to 56 days after the request is submitted to the owner which means that the timing of the payments in the bespoke contracts used in Turkey mostly agrees with FIDIC Red Book.

Table 6. Subject of comparison

Number	Subjects
1	Timing of payments, delayed payments, owner's financial status
2	Amount of retainage, amount and repayment terms of retainage
3	Advance payment amount, advance payment guarantee
4	Performance bonds
5	Time extensions
6	Cost escalation

Table 7. The Timing of the payments in bespoke contracts

Payment terms	Number of contracts	Percentage
<14 days	3	0.99
14-28 days	24	7.89
28-56 days	212	69.74
>56 days	58	19.08
Not specified	7	2.30
Total	304	100%

Late payment is considered the main reason for project delay [19, 20]. The critical question in this matter is whether the owners stick to the contract conditions and make the payments on time or not. Another question is, does the contractor have any

recourse to a legal remedy in case there is a delayed payment. The position of the FIDIC Red Book is very clear:

“14.8 – Delayed Payment: If the Contractor does not receive payment under Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay.”

Unlike the alignment of the timing of the payments with FIDIC Red Book, none of the contracts considered in this study gave any legal rights that entitle the contractor to receive compensation for the losses caused by delayed payments. That is why the owners feel comfortable in these contracts even though late payment jeopardizes the success of the project.

Section 2.4 Employer's Financial Arrangements clause in FIDIC Red Book states that “The owner's arrangements for financing the owner's obligations under the contract shall be stated in detail in the contract documents.” Even though in most FIDIC contracts this clause is open to negotiation by project owners, this is a very critical clause that provides contractors with proof of solid financing arrangements, relieving contractors from suffering the consequences of late payment on the part of the owner. This clause gives the contractor the right of termination in case proof of solid financing is not provided by the owner when requested by the contractor. Unfortunately, none of the contracts investigated in this study had such a clause.

4.2. Retainage and release of retainage

FIDIC does not specifically offer a percentage for the money retained from each monthly progress payment, but the re-payment of the retainage is clearly defined in clause 14.9 of FIDIC Red Book as releasing the first half after the owner issues the “taking over certificate” (substantial completion certificate) and the second half after the expiry date of the defect notification period. Substantial completion refers to the completion of the essential parts of the building that allows the use of the building by the owner for its original purpose even though there may be some inconsequential deviations from the contract that need to be

completed or corrected (the punch list items). Final completion refers to the completion and correction of all items specified in the punch list issued by the owner after substantial completion. Final completion denotes the time when all contract requirements (including punch list items) are satisfactorily completed by the contractor, allowing the owner to take over the constructed facility, make the final payment, and return the retainage. Final completion marks the end of the contract. More than half of the contracts investigated in this study required retainage between 3% to 5% of the interim payments. In 111 (37%) of the 304 contracts considered in this study, no retainage was withheld. In 85 (83%) of the 103 procurement contracts, no retainage was withheld either. Table 8 shows the retention rates. Almost 90% of the retained money was released by the owner either at substantial completion or at the latest 90 days after substantial completion. The retained money was returned to the contractor at final completion in only 10% of the contracts. It is noteworthy that in 79% of the contracts, retainage was withheld as cash, and in the remaining 21% of the contracts as debentures.

4.3. Advance payment and advance payment guarantee

FIDIC Red Book recommends advance payment under clause 14.2 and leaves the parties to decide about how much the advance payment should be. In a third of the contracts considered in this study, no advance payment was made. On the other hand, more than half of the contracts offered to make an advance payment of 20% or less of the contract value.

Table 8. Retention rates

Retainage Rates (percent of interim payment)	Number of Contracts	Percentage
<3%	11	3.62
3%-5%	175	57.57
5%-10%	6	1.97
>10%	1	0.33
Not Requested	111	36.51
Total	304	100%

Although the specialty contracts in Turkey are small and most specialty contractors face financial problems, 94% of the advance payments were made against an advance payment guarantee. The major problem with advance payment guarantees seems to be the expiration period of this financial instrument. FIDIC Red Book states:

“14.2.1. Advance Payment Guarantee: The Contractor shall ensure that the Advance Payment Guarantee is valid and enforceable until the advance payment has been repaid, but its amount may be progressively reduced by the amount repaid by the Contractor as stated in the Payment Certificates.”

Unfortunately, 63% of the contracts which included an advance payment clause either did not mention an expiration date or mentioned an open-ended period. Another problem observed was about the repayment of the advance payment and the risk reduction of the advance payment guarantees. On this issue, while some of the contracts followed the same approach as in the FIDIC Red Book clause 14.2.1 stated above, some owners increased the monthly repayment installments to get the totality of the advance payment back before the project completion date, yet they did not reduce the amount guaranteed in the Advance Payment Guarantee by an amount proportional to the amount repaid by the contractor. This situation created a cash flow problem for the contractors because of unjustified fees paid to the bank. Indeed, the contractor pays a fee for the risk created by the totality of the guarantee even though the risks to the bank are declining as the contractor pays back portions of the advance payment to the owner.

4.4. Performance bond

A performance bond is one of the main guarantees required by project owners when signing a construction contract. Section 4.2 Performance Security of FIDIC Red Book states:

“The Contractor shall obtain (at the Contractor’s expense) a Performance Security to secure the Contractor’s proper performance of the Contract, in the amount and currencies stated in the

Contract Data. If no amount is stated in the Contract Data, this Sub-Clause shall not apply.”

There is room for the contractor to negotiate with the owner not to provide such a guarantee. 56 (19%) of 304 contracts considered in this study did not require any performance bond, while in 71% of the contracts, contractors were asked to submit a performance bond with a face value of 10% of the total contract amount or less. Like in the Advance Payment Guarantee, the expiration date is also a serious problem for the performance bonds required. 65% of the contracts in this study required the contractors to submit performance security with an open-ended expiration date. FIDIC Red Book uses the Performance Certificate (final completion certificate) to regulate the length of the warranty period after final completion.

4.5. Time extension

One of the main problems in a building construction project is the completion delay which may also lead to disputes [21, 22]. Out of the 18 projects considered in this study 15 (83%) were delayed. It is important to find out the reasons behind the delays and determine if the contractor deserves a time extension. FIDIC Red Book grants such time extension for many reasons such as variations, adverse climatic conditions, unforeseeable shortages of materials and personnel, and reasons attributable to the owner. In this study, in 262 (86%) of 304 contracts, time extensions were awarded to contractors for force majeure, and in 26 contracts (9%) for other reasons, while no time extensions were awarded in 16 (5%) of the contracts. The fact that a time extension was granted to the contractor in 95% of the contracts for force majeure did not help the project to be completed on schedule. In other words, even if the delay clause in the contract unequivocally states that no time extensions will ever be granted, it is inevitable that projects will still be delayed. For that reason, it is important to structure a contract by making sure that the roles and the responsibilities of the parties are clearly set. If the reasons that may cause delays are defined clearly and if both sides are encouraged to avoid such potential risks, the projects may more likely be

completed on schedule. In fact, it is very difficult to determine the responsibilities of the parties when there is a delay occurs in an activity because of concurrency and float ownership issues. Also, consequential damages caused by activity delays may have significant impacts not only on the timely completion of subsequent activities, but also on the validity of the performance bonds, the guarantees of the materials, the supply of good workmanship, the rental/purchase decisions of equipment, and the coverage of insurance policies. Furthermore, the parties may need to discuss the possible cost escalations due to the additional expenses that may arise in the extended period. All those important issues are needed to be clearly identified in a well-structured contract.

4.6. Cost escalation

Cost overruns have always been the subject of disagreements and disputes among project parties. Triggering events, claims, and contract provisions are the three components of disputes [23]. Including provisions in the contract that define the rights and responsibilities of the parties in cost-related issues may reduce the number of disputes and enhance the overall performance of the project. Although Section 13.7 of FIDIC Red Book includes directions for handling changes in cost and duration in different clauses, 99% of the contracts investigated in this study did not have any cost escalation clauses. This situation resulted in losses for contractors because cost-related problems are resolved by owners. In Turkey, to transfer their financial risks, project owners tend to sign either fixed unit price or lump-sum contracts, which do not grant any cost escalation to the contractors even though the economic conditions and the project scope are not as ideal as project owners assume. Double-digit inflation, the devaluation of the Turkish currency against the U.S. Dollar and the Euro, only a partially completed design, and an ill-defined scope encourage contractors to submit frequent claims in order to recover the related losses incurred during the execution phase. In such circumstances, a project owner should formulate a contract that ensures that the risks of the project are

distributed fairly between the parties and that incentivizes contractors to successfully complete the works rather than struggling with administrative and financial problems. The contract provisions should consider the joint impacts of time and cost-related issues because time and cost are interconnected.

5. Conclusion

Contract administration has always been one of the most important parts of project management. For this reason, many national and international institutions have issued general conditions for different types of projects. These books are regularly updated in response to the changes that take place in the building construction industry. The Turkish building construction industry is one of the drivers of economic growth. Many building projects were completed by contractors for private owners in the last decades. Turkish contractors are very familiar with international standards because many of them routinely undertake projects overseas. However, bespoke contracts are commonly used in local building projects by many private owners. This study investigated time and cost-related issues in 304 such contracts undertaken in Turkey and compared the findings with the relevant clauses in FIDIC Red Book, one of the most commonly used international standards.

The results of the study revealed that project owners wrote reasonable payment terms in the contracts but did not allow for any legal contractor rights in case of late payment or non-payment by the owner. Additionally, these bespoke contracts did not include any provisions regulating the presentation of the owner's financial status as is specified FIDIC Red Book. Also, no cost escalation was allowed under any circumstances in most local contracts. The same mindset was also reflected in the time provisions as time extensions were awarded mostly for force majeure.

A good contract is prepared to be fair to both parties to ensure project success and avoid disputes. The findings of this study reveal that the Turkish building construction industry needs contract administration standards for professional

construction management. While the adaptation of international standards to Turkish local requirements may be a solution, a new set of standards that consider not only internationally recognized common practices, but also local cultural, social, and economic conditions. This approach may work well for the Turkish construction industry.

The following recommendations are made for Turkish contracts in light of the observations made in this study.

- Contractors prefer to do business with project owners who have sufficient funds to finance the project and who make the interim payments on time. A new set of standards designed for Turkish practice could mitigate such concerns if they resemble the FIDIC standards.
- The funds retained by the owner from the interim payments constitute an important security fund for the owner as it allows the owner to take action at the contractor's expense if the contractor misbehaves. On the other hand, retainage is an important issue for contractors as it creates cash flow problems during construction, which sometimes forces the contractor to borrow money and pay interest. The timing of the return of the accumulated retainage funds to the contractor is critical for the simple reason that a late release of retainage costs the contractor more interest. A new set of standards could regulate the rate of retainage and the timing of its release in light of project size and complexity.
- Advance payment is critical for contractors at the start of a project for mobilization as well as negotiating prices and making deposits with vendors, especially in fixed-price contracts. In Turkish practice, a project owner makes an advance payment only after getting a guarantee from the contractor that the advance payment will be fully paid back, just like a loan. This guarantee is an instrument that the contractor obtains from a financial institution for a fee based on the size of the advance payment. The owner tends to keep this financial instrument until the end of the project. However, If the risk reduction commensurate with the monthly repaid amounts is considered in a new set of standards, the contractor's interest costs can be reduced, and their cash flow can be enhanced.
- A performance bond is one of the main guarantees for a project owner that the contractor will fulfill the contractual obligations. In Turkey, the inadequate financial strength of the typical contractor creates problems in that it makes it difficult for the contractor to get bonded by financial institutions. The compromise is to keep the face value of the performance bond quite low (e.g., only 10% of the contract value), which represents a big risk for the project owner. In addition, neither FIDIC nor the bespoke contracts investigated require the submission of payment bonds by contractors, i.e., bonds issued by financial institutions to protect third parties against non-payment caused by general contractor default. Payment bonds and the face value of performance bonds could be considered in a new set of standards developed for Turkish practice.
- An important point to be considered is project delays in Turkish practice. Both contractors and project owners suffer from the complications caused by delays. Contractors are not comfortable getting only a time extension for owner-caused delays, but not receiving reimbursement for consequential damages caused by these delays. A new set of standards could clearly state (1) the procedures to be followed when delays are caused by contractors, project owners, or third parties, and (2) the actions to be taken when consequential damages are incurred after delays occur.
- Not being allowed to charge for cost escalation in any circumstance is a major problem for Turkish building contractors. The absence of cost escalation clauses in Turkish contracts is problematic and may cause disagreements and disputes. It would be a good idea to include a clause in the contract that clearly specifies whether the contractor can charge for cost

escalation or not, particularly in the volatile economic conditions of Turkey.

In addition to the contract standards mentioned above, some additional standards may also be developed for a healthier building construction industry in Turkey. These standards may start by defining the minimum requirements for companies considered for performing contracting activities depending on the size, type, and complexity of the projects. Clearly specifying these requirements before bidding may help contractors with their bid/no-bid decision and may assist the owners with the selection of the winning contractor.

Although project owners often engage the services of construction management firms, they continue to frequently interfere in project decisions. This situation creates an authority problem and impedes the efficiency of the CM firms. The next step may be to initiate a shift in the project owner's habits from high interference in each phase of the project to a more professional project management approach.

This study covered the time and payment-related clauses of 304 Turkish bespoke building construction contracts. Future research may focus on a wider scope and may include other commercial and legal aspects of the contracts such as dispute resolution methods, insurance requirements, guarantees, and penalties. Such research may provide a deeper understanding of Turkish building contracts and may result in additional recommendations for practitioners.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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