

The Kazakhstan 3.6 GHz Spectrum Auction

A brief commentary of the results of the recent auction for 3.6 GHz spectrum in Kazakhstan and the impact on the competitive landscape

January 2023

The Kazakhstan 3.6 GHz spectrum auction

Introduction

Auction prices for 3.6 GHz spectrum in Kazakhstan were surprisingly high

The Ministry of Digital Development, Innovations and Aerospace Industry of the Republic of Kazakhstan recently announced the results of their spectrum auction for two 100 MHz Lots of 3.6 GHz spectrum. The spectrum was acquired by a consortium formed by mobile operators Kcell and Mobile Telecom Service (Tele2-Altel), both part of the Kazakhtelecom Group.

The consortium paid US\$ 125 million for spectrum in the frequency range 3.6 to 3.7 GHz and US\$ 201 million for the 3.7 to 3.8 GHz range, a total of US\$ 336 million for 200 MHz of spectrum in a country with a population of circa 19 million. The price is surprisingly high and it would appear that the Ministry prioritised revenue raising over promoting and maintaining competition within the mobile market.

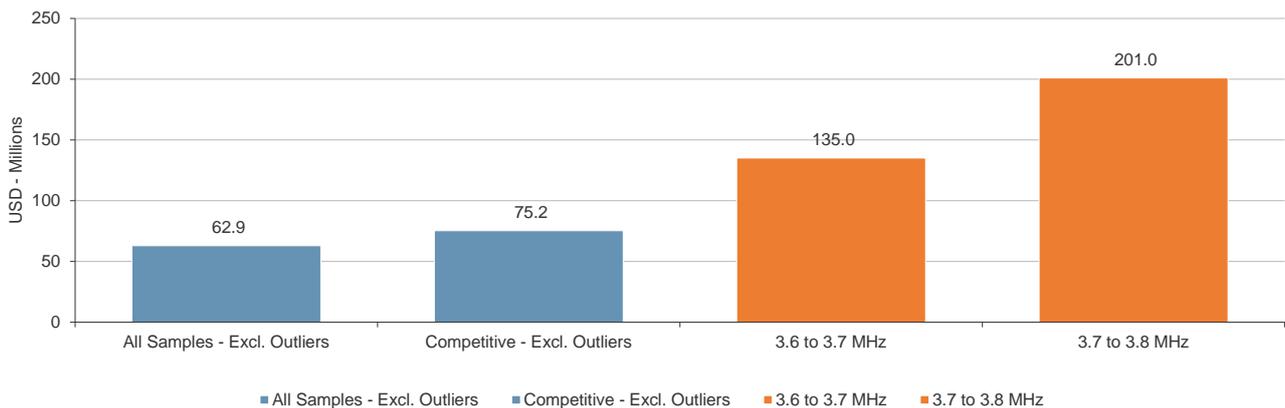
Benchmarking the Kazakhstan auction price

With some notable exceptions, the prices for 3.6 GHz spectrum have been reasonable

There have been a large number of 3.6 GHz auctions in the last few years. Coleago's spectrum auction database contains more than 50 auctions, all of which have been concluded since 2014. A small number of auctions have been characterised by exceptionally high prices, most notably in the United States, Canada, Thailand and, to a lesser extent, Italy. Putting these outliers aside, prices have generally been reasonable as there is typically sufficient spectrum in the band to ensure that all market participants can each obtain enough spectrum to compete effectively. The results of the recent Kazakhstan auction are, therefore, something of a surprise.

In the exhibit below we compare the price of the two Lots in Kazakhstan with the valuations implied by benchmarks. In computing the benchmarks, we have excluded outliers using Tukey's Fences approach and made adjustments for relative GDP, population, exchange rates, inflation and the amount of spectrum being auctioned. The results are based on median values and our preferred measure is the median value of competitive auctions, excluding outliers.

Exhibit 1: Spectrum auction benchmarks



Source: Coleago Spectrum Auction Database

Prices in Kazakhstan were very high compared to benchmarks

As the exhibit shows, the consortium paid 79% more than the benchmark for the first lot and a premium of 167% for the second Lot. Not only are the prices high but it is also interesting to note that the second Lot was priced significantly higher than the first block whereas normally, from a technical perspective, we would expect to see diminishing marginal returns to additional spectrum to single operator and more generally similar prices for similar spectrum across both auctions.

Blocking value and regulatory objectives

Most regulators seek to achieve a reasonable balance between their policy objectives

Regulators typically have a range of statutory duties which are shaped by the government's public policy objectives. These duties usually include increasing consumer welfare, encouraging investment and promoting competition. Relatively few regulators publicly state revenue raising as a key goal, but the regulator is often under considerable pressure to achieve high prices for the country's spectrum resources. Most regulators, however, will seek to achieve a reasonable balance between these differing and often conflicting goals.

Kazakhstan's mobile market comprises three players, two of which, Kcell and Tele2 Kazakhstan, are majority owned by KazakhTelecom which in turn is majority owned by the sovereign wealth fund, the National Welfare Fund "Samruk-Kazyna". The third player is Beeline which is owned by the VEON Group.

The 3.6 GHz band is crucial for 5G as it combines a relative abundance of spectrum, there is typically 400 MHz available, and reasonable propagation characteristics. In principle, there should be more than sufficient spectrum to ensure that in a three-player market, all operators can obtain adequate spectrum to deploy 5G in both a commercially and spectrally efficient manner.

There was sufficient spectrum available to ensure that all operators received adequate spectrum

In the case of Kazakhstan, only 200 MHz was available. Despite the reduced amount of spectrum that was taken to auction, there was still sufficient spectrum to ensure that each player could obtain a reasonable and commercially viable share. However, the Ministry decided to award the spectrum in only two Lots of 100 MHz each. In a market with three players, this creates artificial scarcity as it implies that at least one operator will not be able to acquire any spectrum at all and this is counter to best practice.

The absence of spectrum caps created significant risks for bidders

The Ministry then compounded the risks for bidders by not imposing any spectrum caps which would have limited the amount of spectrum any individual bidder could acquire. Spectrum caps are commonly used to avoid a high level of concentration of spectrum which can be detrimental to competition landscape. The 3.6 GHz band is particularly important for the deployment of 5G due to its relative abundance and hence capacity but also due to its reasonable propagation characteristics. An operator deprived of this key band may well find that it is not economically viable to compensate for the lack of spectrum through the densification of its network. The result is a significant reduction in its ability to compete effectively and a market with reduced competitive tension is generally adverse for the welfare of consumers.

The limited amount of spectrum, the large Lot sizes and the absence of a spectrum cap created significant "blocking value". Typically, the value of spectrum is determined by the network capex and opex which is avoided as a result of acquiring additional spectrum. However, if a bidder can block another bidder from acquiring spectrum and therefore gain a competitive advantage as a result, a very high monetary value will be attached to the blocking value. This would appear to be the case in Kazakhstan.

A sequential series of auctions creates Substitution Risk

The Ministry adopted a sequential auction process, first auctioning the first Lot and then the second. A sequential award of spectrum is already problematic as it creates Substitution Risk for bidders because when bidding in the first auction, they have to guess for what price they could potentially acquire alternative spectrum in the second auction, and any errors in their guesses can result in auction outcomes that are not economically efficient. However, in the case of Kazakhstan, a much more serious issue was that in the second and final auction, the consortium was able to block VEON from acquiring the spectrum and the blocking value of the 2nd Lot explains why the price premium for the second Lot was much higher than the already expensive first Lot. The result of the auction design was that very high prices were achieved but at the cost of significant damage to the competitive environment which will have long term detrimental consequences for consumer welfare.

Historically, when the total amount of industry assigned spectrum was relatively modest, a spectrum poor mobile operator could usually compensate for a lack of spectrum by densifying its network. They could essentially substitute capex and additional sites for spectrum – an operator could always "build itself out of trouble".

However, as data traffic increases and the amount of spectrum assigned rises, a significant imbalance in spectrum holdings, such as in the case of Kazakhstan, can cause the “build out of trouble” assumption to break down. An operator such as Beeline may not be able to densify its network to compensate for a lack of spectrum. Interference issues, planning permission challenges or simply budget constraints may prevent the operator from building sufficient sites to compensate. When this occurs, the operator cannot serve all its customers’ traffic, network quality degrades and result is a loss of market share and ARPU leading to a rapid deterioration in financial performance. The outcome in Kazakhstan will be a significant change to the competitive landscape and market dynamics with reduced choice for consumers.

Balancing revenue raising and competition concerns

Smaller Lot sizes, spectrum caps and a simultaneous auction format would have delivered a better outcome

The Ministry could have achieved a much better outcome if it had, for example, auctioned the available 200 MHz in blocks of 10 MHz in some form of Simultaneous Multi-Round Ascending Auction (SMRA) format and imposed a spectrum cap of say, 70 MHz. To ensure sufficient revenues were raised, the regulator could have also implemented a higher Reserve Price to ensure a minimum, but acceptable level of government revenue was also raised.

Such an approach would have avoided Substitution Risk leading to a more economically efficient auction design. It would also have ensured that there were no adverse effects on the competitive landscape and consumer welfare. There would have still been competitive tension in the auction as bidders might be prepared to pay a premium for a larger share of the spectrum and even if the auction was not highly competitive, the higher reserve price would have ensured that reasonable revenues were raised.

Moving forward

The Ministry should move quickly to make more spectrum available to address the current imbalance in the market

The Ministry should now move quickly to address the imbalance that now exists in the marketplace. The remaining spectrum within the band should be auctioned as soon as possible and relatively tight auction spectrum caps should be imposed to allow the imbalance in spectrum holdings to be resolved. The Ministry should also avoid the temptation to set the reserve price for any future auction on the basis of the prices recently paid. The auction prices were the result of artificial scarcity and a blocking value and therefore are not indicative of the true market value of the spectrum. The reserve price should be low but sufficiently material to deter frivolous bidders.

About Coleago Consulting Ltd

Graham Friend, M.A., M.Phil., (Cantab), ACA, is an economist and the Managing Director and Founder of Coleago Consulting. Coleago is a specialist telecoms strategy consulting firm and advises regulators and operators on issues relating to spectrum, regulation and network strategy. If you would like to discuss any of the issues raised in this paper, then please contact Graham Friend.



Email: graham.friend@coleago.com

Mobile: +41 79 855 13 54