An arms dealer shows his wares, the prices of which rose dramatically when civil war broke out in neighbouring Syria. Beirut, Lebanon, 2012. © Marwan Tahtah

Price Watch
ARMS AND AMMUNITION AT ILLICIT MARKETS

INTRODUCTION

In the run-up to the withdrawal of NATO-led troops—scheduled for the end of 2014—prices for illegal arms in Afghanistan have soared dramatically. The price for an AK-47 rifle tripled during 2012. As an Afghan civilian explained, 'People are saying security will collapse, or soldiers will join warlords or the Taliban, so we need something to protect our families when there's a crisis' (Petty, 2012).

The prices of illicit firearms and their relation to security dynamics have attracted interest among journalists and researchers for some time. In Afghanistan, for example, the recent price increase spurred speculation that the security situation in the country would soon deteriorate. Analysts also argue that prices provide an indication of arms availability, 'demonstrating whether or not they can be easily obtained' (Karp, 2002, p. 65). Statistical analysis has even suggested that lower Kalashnikov rifle prices lead to an increased risk of civil war (Killicoat, 2007, p. 258).

Despite continued coverage of arms prices, analysis has been constrained by the difficulties inherent in gathering information from illicit markets. Most research has relied on second-hand data, often prices quoted in media reports. The fact that data collectors generally cover different locations and periods of time—while speaking to different sources—further hampers the comparability of the data. Information on prices for illicitly sold ammunition is particularly scarce.

This chapter seeks to advance current knowledge through a preliminary analysis of price data collected by the Small Arms Survey between February 2011 and September 2012. This initiative relied on field-based researchers, NGOs, and other informants with direct access to arms dealers. They collected prices on a monthly basis for both arms and ammunition sold at open-air and underground illicit markets in Lebanon, Pakistan, and Somalia. Consistent with previous research, surveyed arms dealers and observers identified a series of factors that help to explain variations in the price of arms and ammunition, including political unrest, activities of armed groups, and official corruption. While recognizing the plurality of these factors, the chapter focuses on the following two questions, drawing primarily from the quantitative data gathered over the 20-month period:

- Do prices of arms and ammunition exhibit similar variations over time and across locations?
- Is there a relationship between local security-related conditions and the prices of illicit arms and ammunition?

The main findings include:

- Within each surveyed location—Lebanon, Pakistan, and Somalia—the prices of arms and ammunition generally exhibited similar trend lines.
- Ammunition prices in Lebanon were strongly correlated with reported conflict casualties in neighbouring Syria.
- Behind the generic 'Kalashnikov' label hides a variety of models with very different price tags. When different Kalashnikov variants are available, those chambered for the 7.62 × 39 mm cartridge are much less expensive than models that use the more recent 5.45 × 39 mm round.

- In addition to calibre, determinants of weapons prices include their condition, the country of manufacture, and the type of stock (such as wooden or folding)—yet reliable information on some of these features is often hard to obtain from arms dealers.
- Local perceptions and beliefs associated with particular models also influence arms prices.
- Technical characteristics and local perceptions seem to play a lesser role in determining ammunition prices, resulting in smaller price ranges for ammunition than for arms.

Arms prices typically increase dramatically in the early stages of conflict.

This chapter has three sections. The first reviews available literature and presents chapter methodology, data sources, and limitations. The second section summarizes the main trends and observations emerging from the data on arms and ammunition prices in the three locations, examining whether the two are correlated. The third section identifies some of the factors that appear to affect price levels, with a particular focus on local security conditions. Unless otherwise noted, this chapter draws on investigative and narrative reports submitted by the Survey's data collectors in the three countries under review; Annexe 11.1 provides the raw data collected between February 2011 and September 2012.

UNDERSTANDING ARMS PRICES

Small arms prices have attracted considerable interest from researchers, economists, and policy-makers. This section reviews current knowledge and presents the data collection process used for this chapter. It also discusses challenges involved in gathering such information, noting the resulting limitations in the data.

Current knowledge

In places where data on weapons stockpiles and transfers is non-existent, illicit market prices are relied on to provide an indication of how difficult it is to obtain arms (Karp, 2002, p. 65; Chivers, 2010, p. 381). The most significant quantitative study to date compares Kalashnikov rifle price data across countries, using a supply and demand model.[1] It finds that several supply-side factors influence arms prices, noting that:

- The more effective a country's regulations,[2] the higher weapons prices will be.
- Countries with more porous borders tend to have lower weapons prices. [. . .]
- [Rises] in the military spending of neighbouring countries tend to reduce weapons prices in a particular country [. . .].
- [A surfeit of] weapons in post-conflict environments keep[s] prices low and contribute[s] to the risk of conflict throughout the region for some time after the conflict has ended (Killicoat, 2007, pp. 257–58).

Another particularly significant finding from this study is that 'cheaper weapons prices lead to an increased risk of civil war, independently of other conflict risk factors' (Killicoat, 2007, p. 258). This suggests that monitoring arms prices has utility from an early warning perspective, with low prices being among the factors that should raise the alarm about a possible outbreak of conflict.

Research also notes that, once a war has begun, 'the relationship between weapons prices and the intensity and duration of conflict takes on a different dynamic', with arms prices typically increasing dramatically in the early stages of conflict (Killicoat, 2007, p. 270). Indeed, observers have noted that rising arms prices in Afghanistan, Syria, and Iraq could reflect 'rising expectations of violence in the future' (Petty, 2012; Chivers, 2012a; Barr, 2007). In markets fuelled by conflict-driven demand, high and rising prices reflect an expectation that the security situation will continue to deteriorate.

In post-conflict settings, prices for military rifles tend to plummet. The FN FAL rifle, for instance, sold for just USD 500–800 in Libya in February 2012, a sharp decrease when compared with the thousands of dollars it was worth at the height of the 2011 conflict (Spleeters, 2012a, pp. 16–17). After conflict, more concealable weapons, such as pistols and the associated ammunition, tend to be sold at inflated prices. Also in Libya in February 2012, the FN Browning HP pistol sold for USD 2,400–3,200, and a 9 × 19 mm cartridge cost more than USD 6, even though these items were hardly in demand during the 2011 civil war (Jenzen-Jones, 2013, p. 3; Spleeters, 2012a, p. 17).

Despite continued interest in the prices of illicit arms, many questions remain unanswered. While the Killicoat study finds that several 'supply-side' factors affect arms prices, it also notes that 'all proxy measures for motivation proved insignificant for explaining weapons prices' (Killicoat, 2007, p. 266). The tested proxies included lagged income growth, the proportion of young men in the population, civil war onset, and homicide rates (p. 264). This means that existing models do not help explain what motivates individuals to buy weapons.

The inherent difficulties of gathering systematic information from illicit markets represent a second set of limitations. The available comparative studies have relied on second-hand data—often prices as quoted in media reports—which can fail to capture important information such as the precise type of weaponry, the quantities traded, the location of the transaction, and the characteristics of the trading parties (Killicoat, 2007, p. 272). These limitations make the comparison of arms prices over time and across settings particularly challenging.

Prices for military rifles tend to plummet in post-conflict settings.

Data on the prices of weapons other than Kalashnikov rifles is rather scarce, despite their importance. As a Lebanese arms dealer explained in 2010:

> I know there is a real problem on the streets right now not just because of the machine guns but because I am selling so many RPG [rocket-propelled grenade] launchers. People only buy grenades when they think war is coming. An RPG isn't really a weapon you use to protect your house, but everyone is buying them anyway. Not good (Prothero, 2010).

Similarly, there is little, if any, available information on prices for illicitly sold ammunition, with a few recent exceptions.[3] Anecdotal evidence suggests that scarcity of specific types of ammunition makes the associated weapons unpopular and less used.[4] Yet there is insufficient data to confirm this hypothesis.

The data collection process

This chapter analyses arms and ammunition price data collected in the framework of a pilot project initiated in February 2011. The project was designed to gather information at open-air and underground illicit markets on a regular basis, with the purpose of generating average monthly prices that can be compared over time. Monthly price data covering the period February 2011–September 2012 forms the basis for the analysis presented in this chapter.

The project focused on three locations with known, active illicit or informal arms markets where adequate access to dealers could be established:

- In Lebanon, which lacks open-air arms markets such as those found in Pakistan and Somalia, underground arms dealers sell a variety of items working from home or on the street.[5] The dealers consulted as part of this study operated in the Bekaa Valley and South Beirut (see Map 11.1).
- In Pakistan, the project monitored the markets of Darra Adam Khel and Bara in the Federally Administered Tribal Areas (FATA) (see Map 11.2). These arms markets are known not just for their trade in industry-made weapons, but also for their vibrant local 'craft' industry, which is capable of reproducing most industrial models of arms (Shinwari and Malik, 2004, pp. 10–11; SPADO, 2005, pp. 21–22).[6]
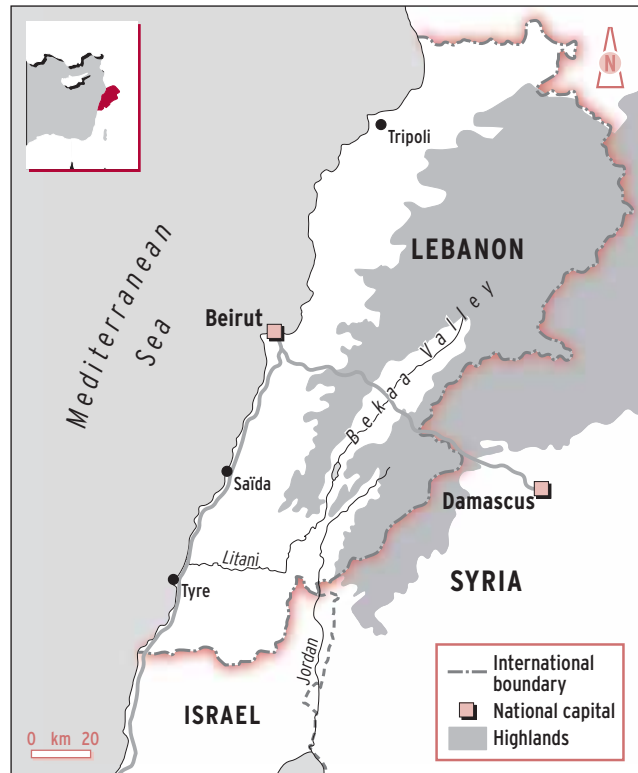
- In Somalia, the project focused on Mogadishu, including the infamous Bakara market, which was under the control of the Al Shabaab insurgency until the August 2011 offensive by the Somali Transitional Federal Government (TFG) (Cadde, 2011; UNSC, 2012, para. 27; Zimmerman, 2011) (see Map 11.3).[7] Following this operation, most Al Shabaab forces fled Mogadishu and the TFG seized control of Bakara market, while Bakara arms dealers went underground and transferred to another part of the capital.

The three locations have in common the fact that demand was affected by local or nearby conflict during the period under study. Somalia has faced recurrent internal conflict since the early 1990s, and fighting between soldiers of the TFG and the African Union Mission in Somalia (AMISOM) on the one side and Al Shabaab and other insurgents on the other was intense for most of 2011 and 2012 (Cadde, 2011; UNSC, 2012, para. 27; Zimmerman, 2011). The surveyed markets in Pakistan are located in particularly volatile regions of the country,[8] as well as near the border with Afghanistan. Although Lebanon did not face armed conflict during this time, fighting erupted in neighbouring Syria in March 2011 and escalated throughout the period under review (VDC, 2012). Syrians have reportedly been crossing the border to Lebanon to purchase arms since the beginning of the conflict (Alami, 2011; Blanford, 2012; Qassem, 2012).

One of the aims of the project was to create a data collection process that would address some of the above-mentioned limitations. For this purpose, the project relied on
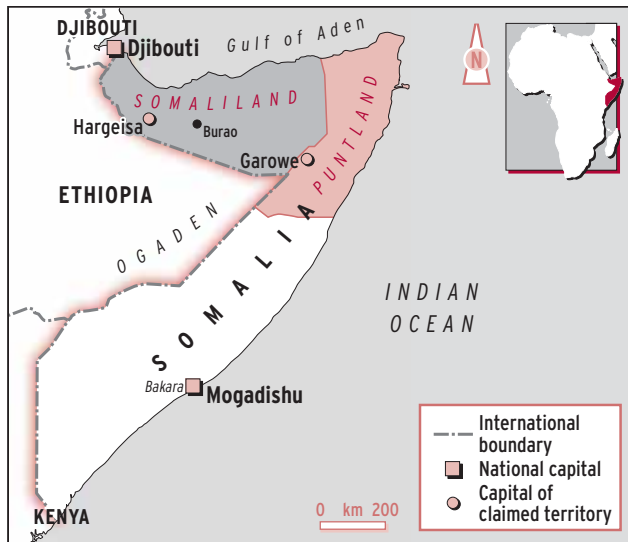
Map 11.1   **Case study: Lebanon**

Map 11.2   **Case study: Pakistan**

Map 11.3 **Case study: Somalia**

individuals and institutions with established access to arms sellers in the selected illicit markets. The data collectors included, in no particular order, a local NGO, a journalist, and vetted local contacts and informants with experience collecting information from the surveyed markets. Common working principles guided the data collection process. Specifically, the data collectors:

- inquired about prices of weapons for sale with a minimum of two local dealers on a regular basis, preferably twice per month;
- reported monthly minimum and maximum prices for preselected weapons and corresponding ammunition that were sold by local sellers;
- monitored available Kalashnikov variants in each location, distinguishing them by calibre (7.62 × 39 mm or 5.45 × 39 mm) and by any other features (such as condition or type of stock);
- tracked prices for other available equipment, which consisted primarily of other military rifles of NATO calibre (5.56 × 45 mm and 7.62 × 51 mm), pistols, general-purpose machine guns, heavy machine guns, and their associated ammunition; and
- asked dealers to identify any market changes and possible reasons behind them.

The Small Arms Survey then entered monthly minimum and maximum prices for each weapon model and ammunition type in a central database. Weapons and ammunition were generally sold in US dollars (USD) in both Lebanon and Somalia. In Pakistan, the rupee (PKR) was used at the markets and PKR values were kept for the analysis of trends. When arms and ammunition prices for Pakistan are provided in USD for comparative purposes, average monthly exchange rates were used for the conversion.

In all three countries, the data collected typically referred to amounts to be paid for small transactions, usually involving one or very few weapons. Typical customers included local individuals and businessmen acquiring weapons and ammunition for self-defence, protection, and other purposes; some probably acted as intermediaries or resellers of small quantities of weapons, such that some of the sold arms may have ended up with armed groups or other organizations. Regardless of the end user and use, the prices reviewed here do not refer to large, wholesale purchases. While this chapter provides unit prices to allow for comparisons, it should be noted that cartridges were usually sold in packages of 10 in Pakistan, 50 in Lebanon, and 30 to 100 in Somalia.

Caveats

Despite efforts to standardize methodology, full comparability of data across locations remains elusive. In Pakistan, the data collectors visited different dealers every month; in Lebanon and Somalia, they regularly contacted dealers with whom they were already acquainted. Even in the context of a single location, different sources sometimes provided

An arms dealer repairs a Kalashnikov rifle at his shop in Landikotal, Pakistan's Federally Administered Tribal Areas, December 2012. © Shahid Shinwari/Reuters

conflicting information. In Mogadishu, for instance, the Survey worked with a total of five data collectors, each of whom consulted different sellers. Two of these data collectors provided reports for most of the 20-month period under study, yet the other three were not as reliable and were occasionally tasked only with cross-checking specific information. At times, the main two data collectors provided contradictory information, especially with respect to Kalashnikov-pattern rifles (7.62 × 39 mm variants) and 7.62 × 39 mm ammunition, with significant discrepancies in the prices of these items after the TFG offensive of August 2011. As a result, analysis of Mogadishu data in the chapter relies on reporting by one data collector who seemed the most reliable based on cross-checking of information, his responses to probing questions, and the depth of his narrative reports, as well as his ability to provide evidence such as photos of the materiel sold.

In Pakistan and Lebanon, where the Survey relied mainly on one data-collecting individual and organization, cross-checking was undertaken mainly through peer review and the checking of other sources.[9] Lastly, in the case of Lebanon, local authorities' crackdown on dealers and rising tensions in Syria made regular consulting with sellers more difficult, with the result that the data collector provided incomplete reports between February and September 2012.[10]

Another challenge lay in distinguishing between weapon types based on limited information provided by dealers. This was particularly true for Kalashnikov-pattern rifles (7.62 × 39 mm variants), which dealers priced on the basis of different criteria in each location. In Pakistan, for instance, different price ranges applied based on whether the rifle was

Table 11.1 Average prices per unit, USD, February 2011–September 2012

Types of weapon and ammunition	Lebanon		Pakistan Industry-made		Pakistan Locally crafted replicas		Somalia	
	Weapon	Ammunition	Weapon	Ammunition	Weapon	Ammunition	Weapon	Ammunition
Pistols								
Browning/9 × 19 mm	2,008	1.10						
Makarov/9 × 18 mm			888	0.60	70	0.20	1,681	2.60
Military rifles								
AK-47 and AKM variants/7.62 × 39 mm	1,606	1.20	1,205	0.60	148	0.20	731	0.60
AK-74/5.45 × 39 mm			2,899	1.50	205	0.30		
AKS-74U/5.45 × 39 mm	4,073	1.50						
FN FAL variants/7.62 × 51 mm	972	0.70						
M16 variants/5.56 × 45 mm	2,847	0.90	3,334	0.30		0.20		
General-purpose machine gun								
PKM pattern/7.62 × 54R mm	3,984	0.70					6,808	0.70
Heavy machine gun								
DShK pattern/12.7 × 108 mm							7,995	0.50

Notes: All prices reflect the average of monthly prices for the period February 2011–September 2012, with the exception of locally and industry-made Makarov pistols and 9 x 19 mm ammunition in Pakistan (March 2011–September 2012), and the Makarov pistol and 9 x 19 mm ammunition in Somalia (October 2011–September 2012). Average ammunition prices are rounded to the nearest tenth to avoid false precision. For Pakistan, PKR prices were converted using average monthly exchange rates.

Source: Annexe 11.1

Russian-, Chinese-, or locally made—and based on its condition (unused or second-hand). In Lebanon, Russian Kalashnikovs were sold at a different price than were Bulgarian, Chinese, and East German variants, which were all grouped into the same price range. In Somalia, the condition and the type of stock (wood or folding) affected prices. These inconsistent price groupings resulted in broad price ranges in all three locations for Kalashnikov-pattern rifles (7.62 × 39 mm variants).

To allow for comparative analysis over time and across locations, this chapter uses the average price per month (calculated as [minimum price + maximum price]/2) as the unit of analysis. This fails to capture the broad ranges for generic weapon models, such as Kalashnikov-pattern rifles (7.62 × 39 mm variants). The chapter separates Pakistan's locally crafted firearm replicas from industrial products, given that industrially produced weapons cost up to ten times more than the craft equivalents (see Table 11.1). Significantly, weapons are also distinguished by calibre; this point is especially important with respect to Kalashnikov rifles, since the AK-74 series is chambered for 5.45 × 39 mm ammunition, whose availability may differ from that of original 7.62 × 39 mm cartridges used in the AK-47 and AKM models.

ARMS AND AMMUNITION PRICES

This section provides a general overview of the arms and ammunition prices collected by the Small Arms Survey between February 2011 and September 2012. It focuses on a limited set of weapons and ammunition types

in each location, such as Kalashnikov variants and other locally available military rifles. One type of pistol in each country and, where available, general-purpose machine guns and heavy machine guns are included for comparison purposes (see Table 11.1). After identifying the main patterns and trends in the data, the section explores the relation-ship between the prices of arms and those of ammunition.

Weapons prices

Challenges in interpreting Kalashnikov prices

Local perceptions of weapons can have an impact on prices.

Prices collected for Kalashnikov variants chambered for 5.45 × 39 mm ammunition—such as the AK-74 and AKS-74U—were significantly higher than those of 7.62 × 39 mm Kalashnikov variants (see Table 11.1). In Pakistan, based on average prices over the 20-month period, the more modern AK-74 sold for more than twice the price of 7.62 × 39 mm Kalashnikov models, almost reaching the price of an M16. In Lebanon, the AKS-74U is also more than twice as expensive as 7.62 × 39 mm Kalashnikov variants. As a shortened but less accurate version of the AK-74, the AKS-74U has a high price tag that may reflect local perceptions of this particular weapon. Indeed, it is referred to as the 'Bin Laden' on the Lebanese markets, a reference to photographs and videos of Osama Bin Laden featuring the rifle (see Table 11.2).[11] As a result, its price can exceed that of NATO-calibre weapons such as the M16, which is usually more expensive than original 7.62 × 39 mm Kalashnikov-pattern rifles. Local perceptions of the more common Kalashnikov models can also have an impact on prices. In Syria in 2012, the uprising 'bred a set of popular mythologies into the minds of the men,' including the belief that Russian-made Kalashnikovs have 'diamonds' in the barrel (Spleeters, 2012b). At the time, these Russian models were being sold for twice the price of the Bulgarian variants.

It is important to note that a wide variety of arms fall under the 7.62 × 39 mm Kalashnikov category, resulting in significant price ranges. In September 2012, in Pakistan, the price for reportedly Russian-manufactured 7.62 × 39 mm Kalashnikovs ranged from about USD 760 for a second-hand model to almost USD 1,900 for a new, unused rifle—a price ratio of 1:2.5. Meanwhile, local replicas sold for just USD 140. The range of prices in Lebanon for the same month was narrower, with rifles presented as Russian-made selling for USD 1,750–1,800 compared with the USD 1,400 asked for reportedly Bulgarian, Chinese, and East German variants. In Mogadishu, data collectors reported higher prices for folding-stock variants of 7.62 × 39 mm Kalashnikovs than for their wooden-stock equivalents.[12]

Taken together, these varying and sometimes wide ranges provide further illustration of the limitations of compar-ing generic 'Kalashnikov' prices across settings, especially when the models concerned are not clearly described. This chapter partly addresses this concern by distinguishing Kalashnikov variants by calibre. The condition and country of production, as well as popular conceptions around particular weapons, appear to be additional criteria that influence prices. Yet, as outlined above, such information is difficult to gather in a reliable and systematic fashion, partly because dealers often provide false information in order to obtain the best possible price, or because they group different types in a similar price range according to local criteria.

The source of the weapon may also affect prices. In Mogadishu, arms that had leaked from government sources were usually sold at a lower price than similar models smuggled from Yemen or Puntland, presumably due to the additional transport costs.[13] An outstanding question is that of the reliability of locally produced weapon replicas in Pakistan. Virtually all original, factory-manufactured models, including automatic firearms, are copied and sold for a tenth of the price, yet little is known about their actual capabilities and use.

Table 11.2 Selected nicknames of weapons sold at illicit markets

Model	Nickname (country of use)	Notes
Makarov pistol	Dabanacas (Somalia)	In Somali, 'Dhabano' refers to cheeks, and 'Cas' means 'Red'. The nickname, which can be trans-lated as 'red-cheeked', seems to refer to the red plastic pieces embedded on either side of the pistol's stock.
7.62 × 39 mm Kalashnikov variants	Circle 11 (Lebanon) Rocket (Lebanon)	Both names refer to factory markings visible on the rifles. The number 11 inscribed in an oblong circle corresponds to the Polish Lucznik (formerly F.B. Radom) factory marking. 'Rocket' appears to refer to the Russian Izhevsk factory marks featuring a triangle and arrow.
5.45 × 39 mm Kalashnikov variants	Kalakov (Pakistan)	Appears to be used as a generic term for 5.45 × 39 mm Kalashnikov variants, such as the AK-74. Not to be confused with 'Krinkov', a name that was apparently devised by Afghani Mujaheddin during the Soviet invasion of Afghanistan in the 1980s and that refers specifically to the AKS-74U.
AKS-74U	Bin Laden (Lebanon)	The name harks back to the former Al Qaeda leader's frequent video appearances with the rifle visible in the background (Chivers, 2010, p. 383).
Locally produced Kalashnikov replicas	TT-Kof* (Pakistan)	A combination of 'TT' in reference to the Tokarev TT pistol and 'Kof' for 'Kalashnikov'. The use of 'TT' seems to derive from the fact that the TT-Kof rifle fires pistol ammunition.

Top photo: A Makarov pistol, nicknamed 'Dabanacas' (meaning red-cheeked), alongside some khat, Hargeisa, Somaliland, 2010. © Jonah Leff

Middle photo: A video image of Osama Bin Laden with an AKS-74U rifle, June 2001. © AFP/TV grab

Bottom photo: An AK-74 pattern rifle, referred to as a 'Kalakov,' at Bara market, in Pakistan's Federally Administered Tribal Areas, 2012. © SPADO

Note: * Prices for the TT-Kof rifle in Pakistan are not analysed in this chapter.

Source: Reina (2012); confidential author correspondence with data collectors, February 2011–September 2012

Degrees of volatility

In order to measure the extent to which arms prices varied over time and across locations and types, a 'coefficient of variation'[14] (CV) was calculated for each weapon model. The CV value expresses price volatility, or the extent to which the price of a weapon for each month differed from its average price over the entire study period. Higher scores express higher volatility.

The average CV score across weapon models and locations, and over the study period, was 0.17 (see Table 11.3). The most volatile prices were those of the FN FAL in Lebanon and 7.62 × 39 mm Kalashnikov variants in Somalia (CV=0.33), while prices for locally produced replicas of the M16 in Pakistan varied the least (CV=0.04). Prices for military weapons varied more markedly than those of handguns: military rifles and machine guns scored 0.18 and 0.19 on average, respectively, compared with just 0.13 for pistols. Location also matters: volatility of arms prices was lower in Pakistan (0.13) than in Lebanon (0.19) and Somalia (0.22).

As might be predicted, a single weapon model can experience varying degrees of volatility in different locations. This is the case, for instance, for 7.62 × 39 mm Kalashnikov variants, which scored 0.12 in Pakistan, 0.19 in Lebanon,

Table 11.3	**Volatility of arms prices, February 2011–September 2012**						
Rank	**Location**	**Type**	**Model**	**Number of months of data analysed**	**Average price in transaction currency***	**Standard deviation**	**Coefficient of variation**
1	Lebanon	Military rifle	FN FAL	16	972	320	0.33
2	Somalia	Military rifle	Kalashnikov (7.62 × 39 mm variants)	20	731	238	0.33
3	Somalia	Machine gun	DShK	20	7,995	2,205	0.28
4	Pakistan	Military rifle	Locally manufactured AK-74	20	18,313	4,029	0.22
5	Lebanon	Military rifle	Kalashnikov (7.62 × 39 mm variants)	16	1,606	312	0.19
6	Pakistan	Military rifle	AK-74	20	261,250	50,507	0.19
7	Somalia	Pistol	Makarov	12	1,681	307	0.18
8	Lebanon	Machine gun	PKM	16	3,984	675	0.17
9	Lebanon	Military rifle	AKS-74U	16	4,073	682	0.17
10	Lebanon	Pistol	Browning	16	2,008	317	0.16
11	Pakistan	Military rifle	Locally manufactured Kalashnikov (7.62 × 39 mm variants)	20	13,250	1,957	0.15
12	Pakistan	Pistol	Locally manufactured Makarov	19	6,316	837	0.13
13	Lebanon	Military rifle	M16	16	2,847	372	0.13
14	Pakistan	Military rifle	Kalashnikov (7.62 × 39 mm variants)	20	108,450	13,309	0.12
15	Somalia	Machine gun	PKM	20	6,808	765	0.11
16	Pakistan	Military rifle	M16	20	299,625	32,406	0.11
17	Pakistan	Pistol	Makarov	19	79,842	4,646	0.06
18	Pakistan	Military rifle	Locally manufactured M16	20	25,900	1,083	0.04
Average							**0.17**

Notes: * Prices are listed in USD for Lebanon and Somalia and in PKR for Pakistan. CV values are rounded to the nearest hundredth and are listed in descending order.

Source: Annexe 11.1

Figure 11.1 **Weapons prices in Lebanon, USD, February 2011–September 2012**

■ Browning pistol ■ 7.62 × 39 mm Kalashnikov variants ■ AKS-74U ■ FN FAL ■ M16 ■ PKM

PRICE PER UNIT (USD)

MONTHS
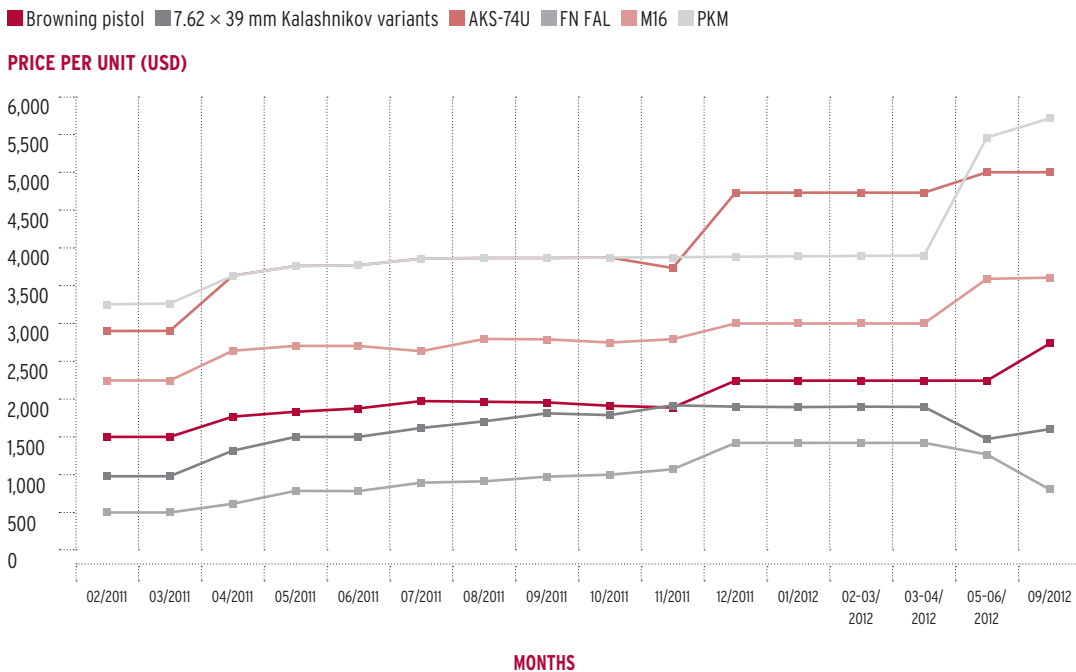
and 0.33 in Somalia (see Table 11.3). While this may sound intuitive, it is significant in that it shows that the prices for illegal weapons depend more on local dynamics than on a single 'global' market.

Perhaps less intuitive, and more significant, is the finding that different weapons in the same location experienced varying levels of price volatility (see Table 11.3). In Lebanon, not only were volatility scores inconsistent across models, but price trends for some weapons also seemed to diverge. The most striking divergence is the collapse in the price of the FN FAL between May and September 2012, while prices for other weapon models continued to increase or remained stable (see Figure 11.1).

In summary, in the studied markets, the prices of weapons belonging to the same category (for instance, military rifles) can follow different and sometimes conflicting trajectories in a single location. Moreover, prices for long, automatic, or 'military-style' weapons appear to have fluctuated more than those of handguns. Previous research has shown that supply factors such as the effectiveness of a country's regulatory system, the military spending of neighbouring countries, and border porosity help in determining the prices of Kalashnikov rifles (broadly defined) across countries (Killicoat, 2007, p. 257). The evidence reviewed here suggests that additional factors may influence the prices of arms, and that their impact on different types of arms varies.

Ammunition prices

Calibre matters

This section examines prices for the types of ammunition corresponding to the above-mentioned weapons. The surveyed ammunition includes rounds that originated in the former Eastern bloc (9 × 18 mm, 7.62 × 39 mm, 5.45 × 39 mm, 7.64 × 54R mm, 12.7 × 108 mm) as well as cartridges of NATO standard (9 × 19 mm, 7.62 × 51 mm, 5.56 × 45 mm).

Prices for Kalashnikov rifle ammunition were higher for the newer types, with 5.45 × 39 mm rounds (for use in the AK-74 series) more expensive than the original 7.62 × 39 mm cartridges (used in AK-47 and AKM models). In Lebanon, the former was 25 per cent more expensive than the latter; in Pakistan, the newer rounds cost more than twice as much as the older variety (see Table 11.1). NATO 7.62 × 51 mm (for the FN FAL) and 5.56 × 45 mm (for the M16) were cheaper than Kalashnikov rounds in both Lebanon and Pakistan. AK-74 rifles and their ammunition appear to be unavailable in Somalia.

Ammunition for pistols was particularly expensive in Somalia, much more so than any other calibre reviewed here. A single 9 × 18 mm cartridge in Mogadishu cost USD 2.60 on average (see Table 11.1). In comparison, pistol ammunition cost USD 1.10 in Lebanon and USD 0.60 in Pakistan—prices that are more consistent with those of other locally available ammunition.

Table 11.4	**Volatility scores for ammunition prices, February 2011–September 2012**					
Rank	Location	Model	Number of months of data analysed	Average price in transaction currency*	Standard deviation	Coefficient of variation**
1	Lebanon	7.62 × 51 mm	16	0.70	0.34	0.48
2	Lebanon	7.62 × 54R mm	16	0.70	0.30	0.44
3	Lebanon	5.45 × 39 mm	16	1.50	0.49	0.32
4	Lebanon	5.56 × 45 mm	16	0.90	0.29	0.31
5	Lebanon	7.62 × 39 mm	16	1.20	0.35	0.29
6	Somalia	7.62 × 54R mm	20	0.70	0.15	0.22
7	Pakistan	9 × 18 mm	19	52.20	9.54	0.18
8	Somalia	7.62 × 39 mm	20	0.60	0.10	0.18
9	Lebanon	9 × 19 mm	16	1.10	0.16	0.15
10	Pakistan	7.62 × 39 mm	20	55.50	6.64	0.12
11	Pakistan	Locally manufactured 5.56 × 45 mm	20	17.30	1.98	0.11
12	Pakistan	5.45 × 39 mm	20	131.80	13.96	0.11
13	Somalia	12.7 × 108 mm	20	0.50	0.04	0.09
14	Pakistan	5.56 × 45 mm	20	30.10	2.63	0.09
15	Pakistan	Locally manufactured 9 × 18 mm	19	18.40	1.41	0.08
16	Somalia	9 × 18 mm	12	2.60	0.17	0.06
17	Pakistan	Locally manufactured 7.62 × 39 mm	20	19.30	0.98	0.05
18	Pakistan	Locally manufactured 5.45 × 39 mm	20	25.90	1.15	0.04
Average						**0.19**

Notes: * Prices are listed in USD for Lebanon and Somalia and in PKR for Pakistan. Average ammunition prices are rounded to the nearest tenth to avoid false precision.

** CV values are rounded to the nearest hundredth.
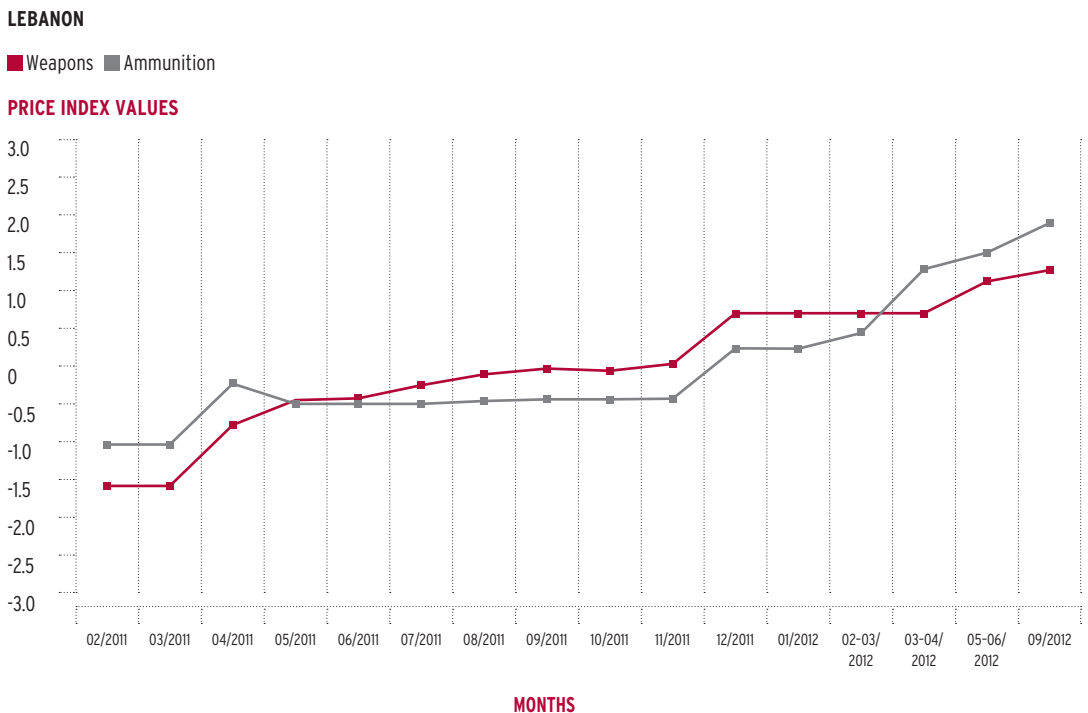
Source: Annexe 11.1

Technical characteristics appear to have less impact on the prices of ammunition than on those of arms. Reported prices for ammunition often consisted of single values, not ranges. If price ranges were provided for ammunition, they were usually much narrower than price ranges for associated weapons.[15] This suggests that, while design, year, country of production, and type of stock are important features in determining the price of a weapon, fewer factors seem to affect the price of ammunition. Further research and more precise identification of ammunition sold at illicit markets is needed to confirm this finding, however, as smaller price ranges for ammunition may simply reflect a more homogenous supply.

More consistent trends

Calculating coefficients of variation for ammunition prices makes it possible to measure the extent to which ammunition prices varied from month to month in relation to the average price. As a result, CV values are comparable not only across types of ammunition, but also with the CV values for weapons prices.

Overall, ammunition prices seem to have been roughly as volatile as arms prices, with an average CV score of 0.19 compared with 0.17 for arms (see Tables 11.3 and 11.4). Yet, at each location, volatility scores for ammunition prices were more consistent than those of arms prices. The five most volatile prices relate to ammunition in Lebanon, whose average CV value is 0.33—significantly higher than the 0.19 average score for Lebanese arms prices. In contrast, ammunition prices show an average CV score of 0.14 in Somalia and 0.10 in Pakistan, both of which are therefore less volatile than the prices of arms in the same locations. Ammunition for long, automatic firearms scored highest with a 0.20 CV average, compared with just 0.12 for pistol ammunition.

Figure 11.2 **Arms and ammunition price trends in Lebanon, Pakistan, and Somalia, February 2011–September 2012**

LEBANON

■ Weapons ■ Ammunition

PRICE INDEX VALUES

MONTHS

Note: Correlation: R=0.87; P<0.001.

Source: Annexe 11.1

PAKISTAN

■ Weapons   ■ Ammunition   ■ Local weapons   ■ Local ammunition
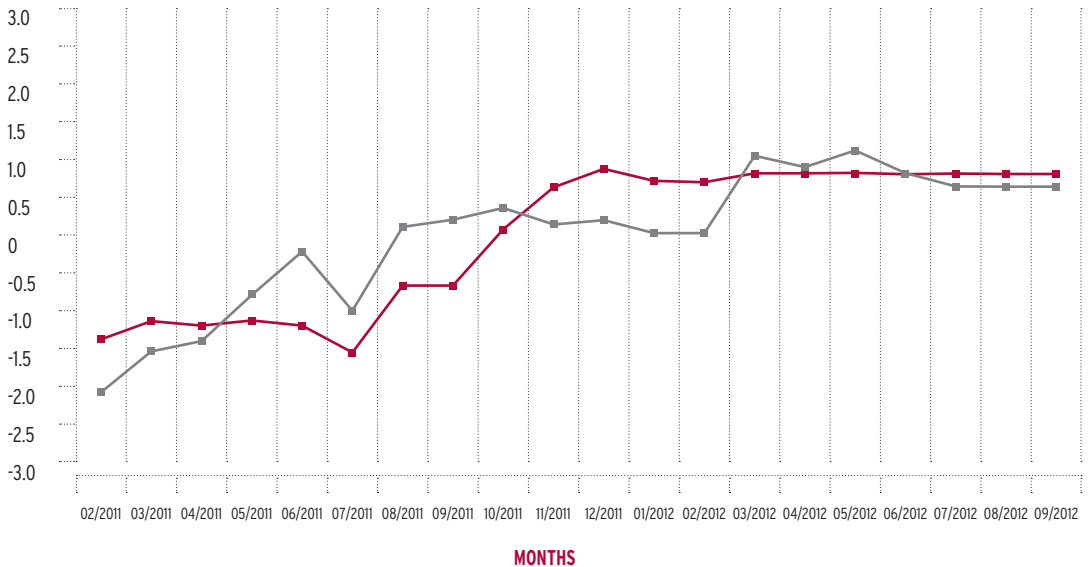
PRICE INDEX VALUES

MONTHS

Note: Correlation, industry-made: R=0.77; P<0.001. Correlation, locally made: R=0.75; P<0.001.

Source: Annexe 11.1

SOMALIA

■ Weapons   ■ Ammunition

PRICE INDEX VALUES

MONTHS

Note: Correlation: R=0.84; P<0.001.

Source: Annexe 11.1

Arms and ammunition prices generally followed similar trends. Figure 11.2 compares arms and ammunition prices across settings using standardized indices. These weapons and ammunition indices were calculated by (1) translating monthly price values for each type of ammunition and weapon model into standardized Z scores, and then (2) calculating the average monthly Z score for all weapons and ammunition surveyed in each location.[16]

Analysis of standardized indices shows that arms and ammunition prices usually evolved in the same fashion and that they were statistically correlated in all three locations (see Figure 11.2). One exception involves the prices of industry-made ammunition in Pakistan between February and June 2011, which decreased while the prices of arms increased. This appears to be the result of the sharp decline in the price of only one type of ammunition, the 5.56 × 45 mm. During the same period, prices for the other three types of ammunition surveyed in Pakistan either remained stable or increased slightly. Overall, arms and ammunition prices in Pakistan were still statistically correlated, although to a lesser degree than in Lebanon and Somalia. In Pakistan, the evolution of prices for industry-made arms and cartridges differed from those of the locally made materiel.

Does the price of ammunition influence that of arms?

Qualitative research has suggested that the availability of ammunition in an area affected by conflict may have an impact on the popularity and use of the corresponding weapons. Interviews with fighters, for instance, revealed that combatants do not care for, and sometimes even dispose of, weapons for which ammunition cannot easily be found locally.[17] Translated into pricing analysis, with other things held constant, this should entail that, when ammunition is cheap, available weapons that chamber it should be in higher demand, and therefore more expensive. At the same time, locally available weapons that use scarcer and more expensive ammunition should experience lower demand and should therefore be cheaper.

For this theory to be tested in ideal conditions, one would need to compare the prices of locally available weapons that have similar capabilities but that use distinct calibres of ammunition. While the weapons studied in this chapter all have distinct features and capabilities, the four different types of military rifles under consideration—namely 7.62 × 39 mm Kalashnikov variants, AK-74 variants, the M16, and FN FAL variants—provide a reasonable basis for comparison. Indeed, these rifles use four different calibres of ammunition and, although their design, accuracy, and range vary, they share several common features. Most important, all four weapons are individual combat rifles and can fire rounds automatically.

The data collected for this study makes it possible to compare average arms and ammunition prices for Kalashnikov rifles and associated 7.62 × 39 mm ammunition with those of other common rifles across several locations. In the surveyed markets of Lebanon and Pakistan, the M16—chambered for 5.56 × 45 mm ammunition—is considered one of the automatic weapons in highest demand, together with 7.62 × 39 mm Kalashnikov variants. The data includes the 'generic' AK-74 for Pakistan and the AKS-74U for Lebanon, both of which are associated with 5.45 × 39 mm ammunition. In Mogadishu, the market for military rifles is dominated by 7.62 × 39 mm Kalashnikov variants. FN FAL variants and their distinct 7.62 × 51 mm ammunition can be found in other parts of Somalia, however, namely in Puntland and Somaliland, for which partial price information was collected. FN FAL rifles were also available in Lebanon.

Based on the data reproduced in Table 11.5, the hypothesis of 'the cheaper the ammunition, the more expensive the military rifle' seems to apply only partially. In Puntland, where the 7.62 × 39 mm round is cheaper than the 7.62 × 51 mm cartridge, 7.62 × 39 mm Kalashnikov-pattern rifles tend to be more expensive than FN FAL variants. In

Arms and ammunition prices were statistically correlated in the three surveyed locations.

Table 11.5   Average arms and ammunition prices for five military rifles of different calibre, in USD

	Eastern bloc					NATO			
	7.62 × 39 mm Kalashnikov variants	7.62 × 39 mm	AK-74	AKS-74U	5.45 × 39 mm	FN FAL variants	7.62 × 51 mm	M16	5.56 × 45 mm
Lebanon	1,606	1.20		4,073	1.50	972	0.70	2,847	0.90
Pakistan	1,205	0.60	2,899		1.50			3,334	0.30
Somalia: Puntland	682	0.80				491	1.30		
Somalia: Somaliland	677	1.00				677	1.00		

Note: The five rifle types are followed by the ammunition for which they are chambered. Average prices are for the periods February 2011–September 2012 for Lebanon and Pakistan, October 2011–April 2012 for Puntland, and October 2011–September 2012 for Somaliland. Average ammunition prices are rounded to the nearest tenth to avoid false precision.

Source: Annexe 11.1

Somaliland, where ammunition for both calibres sells at similar prices, both FN FAL and Kalashnikov variants sold at around USD 680. Prices in Lebanon and Pakistan are much less conclusive. As noted earlier, both the AK-74 variants and 5.45 × 39 mm rounds are more expensive than 7.62 × 39 mm Kalashnikov variants and their cartridges in both countries. The same applies to NATO-standard rifles in Lebanon, with the M16 and 5.56 × 45 mm rounds selling at

Figure 11.3   **7.62 × 51 mm ammunition and FN FAL rifle price trends in Lebanon, February 2011–September 2012**

■ FN FAL   ■ 7.62 × 51 mm

PRICE EXPRESSED AS STANDARDIZED Z SCORE
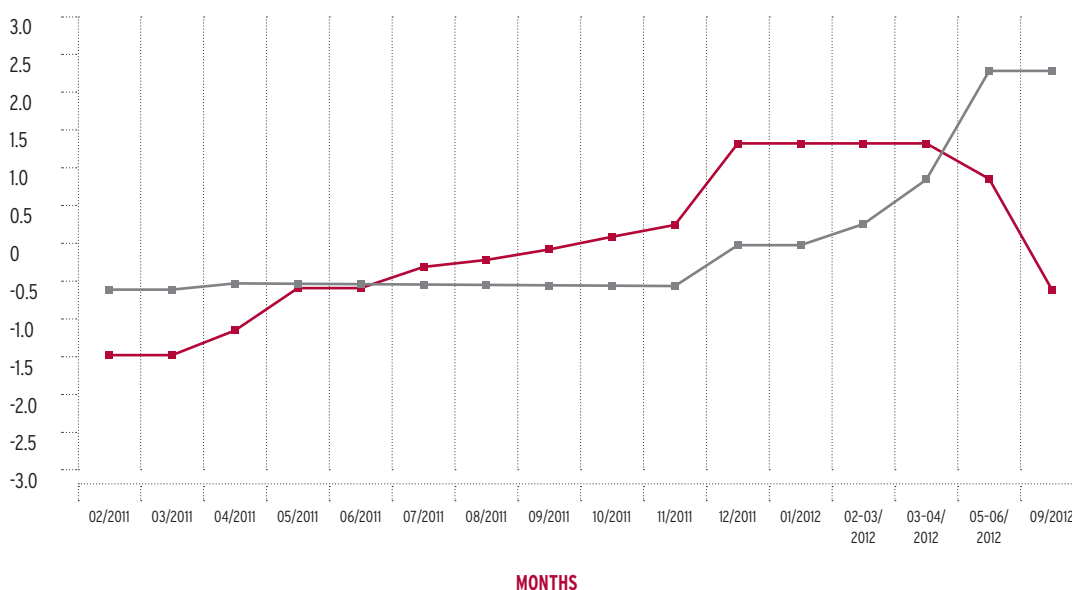
MONTHS

Note: A standardized Z score indicates by how many standard deviations an observation is above or below the average. Expressing price values as Z scores preserves the overall trend line and makes it possible to compare the prices of arms with those of ammunition on the same scale.

Source: Annexe 11.1

higher prices than the FN FAL and its 7.62 × 51 mm ammunition. Comparisons between what appear to be the most commonly sold models seem to hold better, however. Compared to 7.62 × 39 mm Kalashnikov variants, the M16 rifle was more expensive and its ammunition cheaper than its Eastern bloc equivalent in both Lebanon and Pakistan.

An examination of trends should also help in understanding the impact of ammunition prices on those of arms. If the hypothesis of 'the cheaper the ammunition, the more expensive the military rifle' holds true, in case of a decrease (or increase) in ammunition prices, one would expect an increase (or decrease, respectively) in the price of the associated arm. The available data does not suggest that changes in ammunition prices systematically affect corresponding arms prices. The information reviewed above shows that, in each studied location, the prices of arms and ammunition generally followed similar paths over time (see Figure 11.2). This important finding does not necessarily contradict the hypothesis of an effect of ammunition prices on those of weapons, however. When weapons and ammunition prices vary in similar ways, they may be driven by the same external factors, such as conflict-driven demand.

Examining cases where prices varied both markedly and unusually yields interesting results. As discussed above, in Lebanon ammunition prices were particularly volatile and generally followed patterns exhibited by arms prices. Yet prices for some specific military rifles and associated ammunition followed opposite paths. The price of the 7.62 × 51 mm cartridge, for instance, initially experienced several months of stability, increased significantly between November 2011 and June 2012, and then remained stable and high in September 2012 (see Figure 11.3). Although the price of the FN FAL—which is chambered for this type of ammunition—increased until December 2011, it stayed stable and subsequently decreased in May–June 2012, before collapsing again in September 2012.

Figure 11.4 **5.56 × 45 mm ammunition and M16 rifle price trends in Lebanon, February 2011–September 2012**
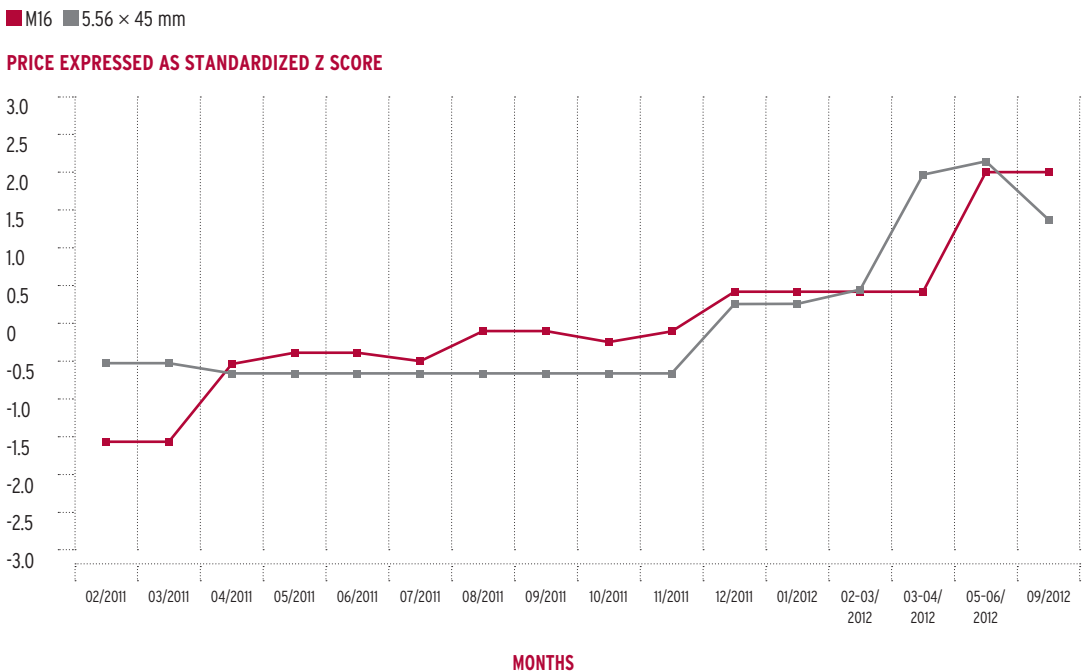
■ M16 ■ 5.56 × 45 mm

PRICE EXPRESSED AS STANDARDIZED Z SCORE

MONTHS

Note: A standardized Z score indicates by how many standard deviations an observation is above or below the average. Expressing price values as Z scores preserves the overall trend line and makes it possible to compare the prices of arms with those of ammunition on the same scale.

Source: Annexe 11.1

Numerous factors could explain this sudden drop in FN FAL prices. A war reporter suggests, for instance, that more abundant supplies of the rifle in neighbouring Syria during the same period may have contributed to stabilizing and decreasing prices in Lebanon.[18] Reports also indicate that 7.62 × 51 mm ammunition was particularly scarce and expensive in neighbouring Syria, reaching USD 3 per cartridge and making FN FAL rifles 'useless' to fighters (Spleeters, 2012b). This provides additional support for a link—even if anecdotal—between ammunition scarcity in the region on the one hand and the fall in FN FAL prices in Lebanon on the other. Interestingly, demand for this rifle seems to have declined in favour of other military rifles for which ammunition prices were decreasing. As Figures 11.3 and 11.4 illustrate, in March–April 2012, at the time the price of the FN FAL was collapsing, that of the M16 began to increase. In other words, FN FAL buyers might have opted to buy other rifles to compensate for the increase in FN FAL ammunition prices.

Overall, the evidence of an effect of ammunition prices on that of the corresponding weapon is mixed. Counter-examples are easy to find, and where a relationship appears to exist, other factors may also intervene. Yet some observations made here are worthy of further investigation. When the most commonly available military rifles—such as 7.62 × 39 mm Kalashnikov variants and the M16 in Lebanon and Pakistan—are expensive, corresponding ammunition prices tend to be low. Similarly, in cases where several military rifles of different calibre are available, unusual changes in the prices of ammunition can correspond with a reversal in the price trend of the corresponding arm, as was the case with 7.62 × 51 mm and the FN FAL rifle in Lebanon.

A Syrian rebel fighter holds an FAL rifle, Aleppo, Syria, August 2012. © Muhammed Muheisen/AP Photo

PRICES AND SECURITY-RELATED CONDITIONS

This section examines the relationship between the prices of arms and ammunition and local security-related conditions, in particular situations of instability and insecurity. The objective is to better grasp the extent to which illicit arms and ammunition prices are connected to local events. Local security conditions are considered using several data sources. First, the data collectors who monitored prices also submitted narrative reports that relate which factors arms dealers and other informed individuals identified as drivers of market shifts. Second, the section compares price data with available quantitative information on local conflict intensity.

Notes from the field

Narrative reports from data collectors propose a series of factors that local dealers and other informants cited when explaining price variations. Table 11.6 provides a summary of these observations, organizing them according to the supply and demand framework used in Killicoat (2007, p. 264). While it is beyond the scope of the chapter—and beyond the possibilities of the collected data—to measure and test each of these factors against price trends, these notes from the surveyed locations are useful in further refining our understanding of local supply and demand for arms and ammunition and in identifying paths for future quantitative research.

Local security concerns were primary motivations for purchasing arms and ammunition.

Although the 'means/income' component was not directly mentioned by local sources, the decreasing value of the PKR was cited as contributing to an increase in the price of foreign-made weapons in Pakistan. In identifying primary motivations for purchasing arms and ammunition, data collectors often cited local security events, such as nearby fighting, and political tensions surrounding elections or political appointments. Anticipated security events—such as the prospective intervention of foreign troops in Somalia—reportedly played a role as well. Lastly, in Pakistan, some seasonal trends appear to affect prices. The tradition of celebratory shooting during Ramadan and Eid reportedly increases ammunition prices; in addition, the Taliban's winter break decreases demand while the traditional spring offensive stimulates it again.

Changes in or events related to the regulatory regime also appear to have played an important role in determining prices in the three locations. Local government initiatives to shut down markets or track down dealers were repeatedly presented as leading to increased prices in the three locations, as were efforts to monitor and control borders more closely in Lebanon and Pakistan. A programme by local authorities to buy back automatic weapons in Pakistan reportedly contributed to an increase in their prices. In Somalia, the Al Shabaab insurgency appeared to set limits on the prices of certain types of ammunition that were sold at the Bakara market and that were becoming expensive to procure.

The factors in red in Table 11.6 relate to the prices of specific types of arms and ammunition, as opposed to prices in general. Since the Killicoat study focuses exclusively on one type of arm, the Kalashnikov rifle broadly defined, it does not address several of these factors. Yet they confirm some of the observations made above. Although not reported by the data collector, press reports indicated that sabotaged military rifle ammunition was introduced in Syria in an attempt to weaken the Syrian opposition (Chivers, 2012b). Such a practice may help explain the decreasing prices in neighbouring Lebanon of certain weapon models and ammunition types in March–April 2012. Finally, narrative reports suggest a number of factors may influence ammunition prices in Somalia, including fighting in Yemen—a country where Somali dealers appear to procure part of their ammunition—as well as leakage from AMISOM and TFG holdings.

Table 11.6 **Local supply and demand factors, as reported by data collectors**			
Components	**Factors identified in Lebanon**	**Factors identified in Pakistan**	**Factors identified in Somalia (Mogadishu)**
Income/means		• Falling value of the PKR (+)	
Motivation	• Political tensions in Lebanon (+) • Unrest in Syria (+) • Militarization of conflict in Syria (+) • Free Syrian Army demand shifts to more sophisticated weapons, (-) for common models, (+) for sophisticated models	• Fighting between Pakistan Army and Taliban in Pakistan (+) • Fighting across the border in Afghanistan (+) • Celebratory shooting during Ramadan and Eid, (+) for ammunition • Self-defence (+) • Spring and traditional Taliban offensive (+) • Winter (-) • High price of M16 linked to lower ammunition price, (+) for M16 • Arrival of new models on the market, (-) for old models	• Expectation that Ethiopia will intervene militarily in Somalia (+) • Al Shabaab orders dealers to arm themselves to defend Bakara (+) • Rearming of clan leaders due to their exclusion from the parliamentary elections (+)
Regulatory	• Tightened border controls (+) • Seizure by the Lebanese Navy of a ship carrying weapons reportedly destined for Syria (+) • Pursuit of dealers by authorities (+)	• Borders tightly monitored by authorities (+) • Closure of Bara and other nearby markets by authorities (+) • Buyback by local authorities (+) • Markets reopened, (-) especially for locally crafted weapons	• AMISOM and TFG crackdown on markets (+) • Al Shabaab flee from Mogadishu (-) • Prices for certain types of ammunition at Bakara market are controlled by Al Shabaab (-)
Supply costs	• Saturation of the Syrian market (-) • Syrian soldiers sell weapons to the opposition and to Lebanese dealers (-) • Smuggling of arms from Syria into Lebanon (-)		• Defeated Al Shabaab combatants flee and sell their arms (-) • Fighting in Yemen, (+) for ammunition • TFG receive large amounts of ammunition (-) • New deliveries of Kalashnikovs and RPGs smuggled from Yemen (-) • AMISOM troops sell ammunition in exchange for mobile phone credit (-) • TFG exchange ammunition for khat or sell it for income due to non-payment of salaries (-)

Notes: Supply and demand components in the first column are taken from Killicoat (2007, p. 264). The symbol (+) indicates that a factor was reported to increase prices; in contrast, (-) reflects that a factor led to a decrease in prices. Factors in red relate to the prices of specific types of arms and ammunition, as opposed to prices in general, which appear in black.

Sources: data collectors' monthly narrative reports, February 2011–September 2012

Do prices correlate with conflict intensity?

The three locations reviewed in this chapter have in common their proximity to armed conflict. These conflicts are internal, as in Somalia; external, as for Lebanon (Syria); or both internal and external, as for Pakistan (Afghanistan). Because these conflicts were either starting or already active when the collection of arms prices for this chapter began, it is not possible to examine whether cheaper prices lead to an increased risk of war.

While quantitative data capturing conflict intensity levels is not available for Somalia, one key event during the research period is worth highlighting given the study's focus on markets in Mogadishu. In August 2011, following the TFG and AMISOM offensive, Al Shabaab withdrew most of its troops from the capital. Following this development, the insurgents mainly carried out 'hit-and-run' operations in Mogadishu (Cadde, 2011); subsequently, they faced increasingly determined opposition from Kenyan and Ethiopian forces and aligned Somali militias in several parts of the country (UNSC, 2012, para. 27). As noted in Table 11.6, local sources explained that the withdrawal of Al Shabaab from Mogadishu and its markets—and the associated decrease in local conflict-driven demand—contributed to stabilizing prices after several months of sustained price increases. Figure 11.2 appears to confirm these interpretations, with arms prices in particular stabilizing after December 2011.

Statistics on conflict casualties and events, although imperfect, provide a basis for measuring the intensity of the conflicts in Pakistan and Syria. Monthly data on fatalities in Syria is available from the Violations Documentation Center, which keeps an account of battle-related deaths among civilians, 'non-civilians', and regime forces. The organization recorded more than 30,000 such deaths between March 2011 and September 2012 (VDC, 2012). Monthly figures show


Bakara market, ten days after Islamist extremist Al Shabaab militants who had controlled the area withdrew abruptly from the capital, Mogadishu, Somalia, August 2011. © John Moore/Getty Images

Figure 11.5 **Fatalities in Syria vs. arms and ammunition price trends in Lebanon, February 2011–September 2012**

■ Reported fatalities (Syria) ■ Ammunition (Lebanon) ■ Weapons (Lebanon)

PRICE INDICES AND CASUALTIES EXPRESSED AS STANDARDIZED Z SCORES
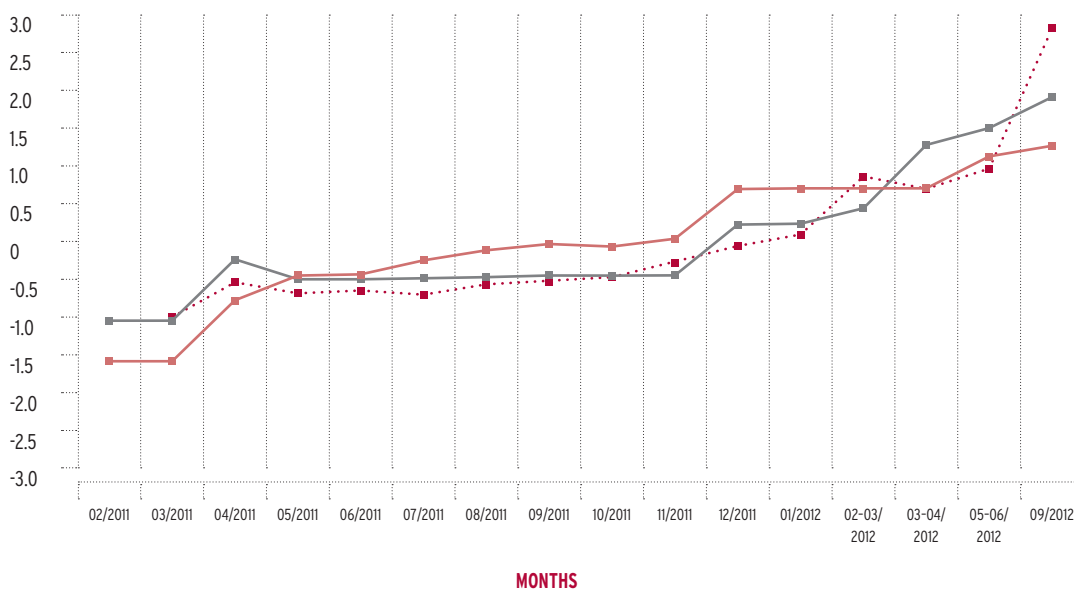
MONTHS

Notes:

Correlation: Syria fatalities and Lebanon weapons price index: R=0.81; p<0.001.

Correlation: Syria fatalities and Lebanon ammunition price index: R=0.93; p<0.001.

When price data covered two months, the average of the corresponding two months of fatality data was used. A standardized Z score indicates by how many standard deviations an observation is above or below the average. Expressing values as Z scores preserves the overall trend line and makes it possible to compare indicators of armed violence with the prices of arms and ammunition on the same scale.

Source: price data: Annexe 11.1; Syria fatality data: VDC (2012)
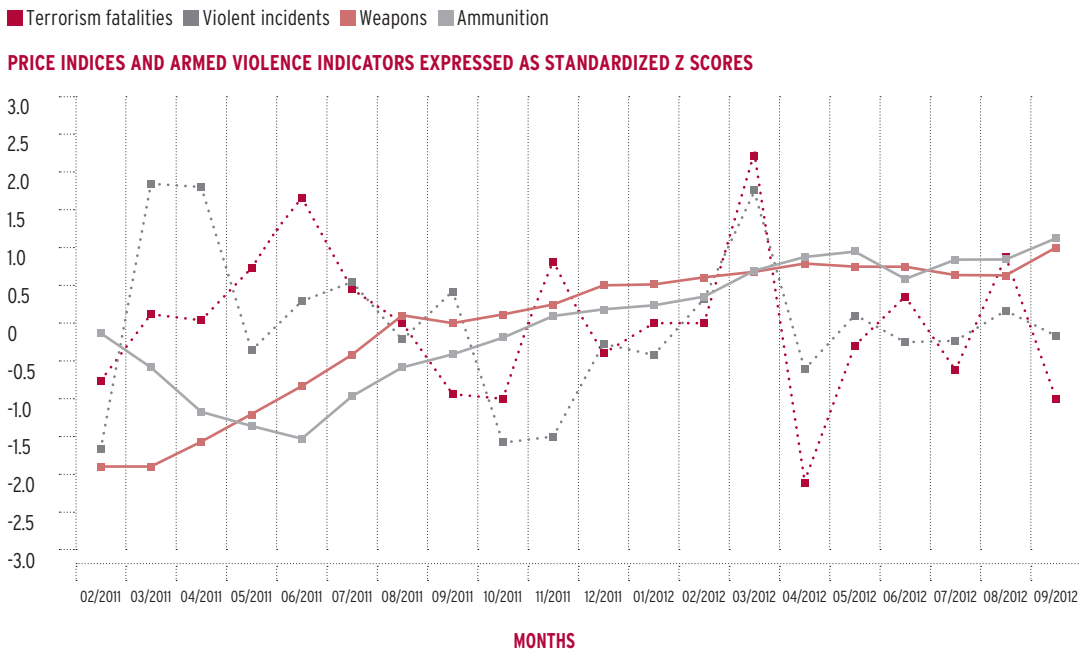
a rapid and continuous increase in conflict fatalities starting in November 2011, with levels peaking in August and September 2012. This spike followed stable fatality levels from March to October 2011.

Strikingly, the Syria fatality trend line closely follows the evolution of both arms and ammunition prices in Lebanon. This finding lends credence to previous observations that, in some contexts, rising arms prices reflect an expectation among the local population that the security environment will deteriorate (Barr, 2007; Chivers, 2012a; Petty, 2012). The particularly strong statistical correlation between fatalities and ammunition prices suggests that ammunition prices may be an even better indicator of such expectations (see Figure 11.5).

The relationship between arms and ammunition prices and conflict intensity in the FATA and neighbouring Khyber Pakhtunkhwa (KPK) province of Pakistan is much less conclusive. As noted above, prices in Pakistan were the least volatile, or fluctuated the least compared to their average value, compared to the prices in the two other locations studied. Available data on conflict intensity seems highly inconsistent from month to month. Figure 11.6 compares weapons and ammunition price indices for Pakistan with 'terrorism-related' fatality levels derived from the South Asian Terrorism Portal (SATP, 2012); it also reflects the number of security incidents in FATA and KPK reported by the local media and assembled by Delve Solutions (2012).

The 'spiky' patterns of armed violence in Pakistan are clearly different from the more steady arms and ammunition price trend lines, showing no statistical correlation. While this finding appears to contradict the above findings from

Figure 11.6 **Armed violence in KPK and FATA vs. arms and ammunition price trends in Pakistan, February 2011–September 2012**

■ Terrorism fatalities ■ Violent incidents ■ Weapons ■ Ammunition

PRICE INDICES AND ARMED VIOLENCE INDICATORS EXPRESSED AS STANDARDIZED Z SCORES

MONTHS

Note: A standardized Z score indicates by how many standard deviations an observation is above or below the average. Expressing values as Z scores preserves the overall trend line and makes it possible to compare indicators of armed violence with the prices of arms and ammunition on the same scale.

Source: price data: Annexe 11.1; terrorism-related fatalities: SATP (2012); violent incidents: Delve Solutions (2012)

Lebanon, the two situations need to be put in context. Price monitoring in Lebanon began as tensions started rising in Syria; they could therefore be expected to increase as the conflict intensified. On the contrary, tensions and instability in the FATA and KPK province of Pakistan preceded the price data collection period. If comparable pricing data had been available for the years reaching back to 2001 and the beginning of conflict in neighbouring Afghanistan, the analysis might have produced different results.

CONCLUSION

This chapter uses unpublished time-series data gathered in multiple locations in three countries to revisit and build upon existing knowledge on arms and ammunition prices at illicit markets. It shows that difficult research conditions at illicit markets do not preclude the creation of a regular data-collection system or the application of basic controls to improve the quality of data.

A careful review of gathered information shows that arms prices depend on a greater set of variables than ammunition prices, including their technical features, local symbolism associated with particular models, and the availability and price of the associated ammunition. In some cases, sudden, unusual shifts in ammunition prices corresponded with a reversed shift in the price of the associated military rifles. Variations in the prices of different types of ammunition also appear to be more consistent, and thus more predictable, than trends in arms prices.

An arms dealer who began trading at the age of ten at his stall in Bakara market, Mogadishu, Somalia, June 2006. © Hannah Allam/Getty Images

Data limitations constrain the analysis of the relationship between illicit arms and ammunition prices and local security conditions. Yet available information shows a clear link between illicit market prices in Lebanon and conflict deaths in Syria. The particularly strong correlation between ammunition prices in Lebanon and fatalities of the first 19 months of the conflict in Syria provides additional evidence of the value of monitoring ammunition prices. In this context, at least, prices for ammunition appear to be a significant indicator of local insecurity, especially during the outbreak of war. Yet available reporting from conflict zones has tended to neglect this important piece of the puzzle, focusing on prices for the most common weapons instead.

The chapter illustrates that a focus on prices for 'Kalashnikov' rifles is fraught with limitations, a finding that may be especially relevant to researchers and reporters. Due to the large number of weapon models possibly falling under this label, the price range tends to be relatively broad. These weapons are priced and sold based on local preferences and criteria rather than on precise technical features that would enable their identification. Monitoring a more diverse selection of arms and, importantly, the corresponding ammunition promises to generate a richer analysis of illicit markets and of their linkages with local insecurity. ■

ANNEXE

Annexe 11.1

Arms and ammunition prices in Lebanon, Pakistan, and Somalia, monthly averages

Lebanon prices (per unit, in USD)

Year	Month	Weapons						Ammunition					
		Browning	7.62 × 39 mm Kalashnikov variants	AKS-74U	FN FAL	M16	PKM	9 × 19 mm	7.62 × 39 mm	5.45 × 39 mm	7.62 × 51 mm	5.56 × 45 mm	7.62 × 54R mm
2011	February	1,500	975	2,900	500	2,250	3,250	0.80	0.77	0.77	0.50	0.77	0.46
	March	1,500	975	2,900	500	2,250	3,250	0.80	0.77	0.77	0.50	0.77	0.46
	April	1,750	1,300	3,625	600	2,650	3,625	1.30	0.83	1.45	0.52	0.73	0.53
	May	1,825	1,500	3,750	775	2,700	3,750	1.00	1.00	1.45	0.51	0.73	0.50
	June	1,875	1,500	3,750	775	2,700	3,750	1.00	1.00	1.45	0.51	0.73	0.50
	July	1,950	1,600	3,875	875	2,650	3,875	1.00	1.00	1.45	0.51	0.73	0.50
	August	1,950	1,700	3,875	900	2,800	3,875	1.00	1.00	1.50	0.51	0.73	0.50
	September	1,950	1,800	3,875	950	2,800	3,875	1.00	1.05	1.50	0.51	0.73	0.50
	October	1,925	1,775	3,875	1,000	2,750	3,875	1.00	1.05	1.50	0.51	0.73	0.50
	November	1,900	1,925	3,750	1,050	2,800	3,875	1.00	1.05	1.50	0.51	0.73	0.50
	December	2,250	1,900	4,750	1,400	3,000	3,875	1.10	1.50	1.50	0.70	1.00	0.70
2012	January	2,250	1,900	4,750	1,400	3,000	3,875	1.10	1.50	1.50	0.70	1.00	0.70
	February–March	2,250	1,900	4,750	1,400	3,000	3,875	1.10	1.65	1.50	0.80	1.05	0.80
	March–April	2,250	1,900	4,750	1,400	3,000	3,875	1.30	1.90	1.55	1.00	1.50	1.05
	May–June	2,250	1,450	5,000	1,250	3,600	5,500	1.20	1.67	2.00	1.50	1.55	1.05
	September	2,750	1,600	5,000	775	3,600	5,750	1.32	1.32	3.00	1.50	1.32	1.50

Pakistan prices (per unit, in PKR)								
Year	Month	Weapons						
		Makarov	7.62 × 39 mm Kalash-nikov variants	AK-74	M16	Locally manufac-tured Makarov	Locally manufac-tured 7.62 × 39 mm Kalash-nikov variants	Locally manufac-tured AK-74	Locally manufac-tured M16
2011	February	n/a	90,000	157,500	225,000	n/a	18,500	25,000	26,500
	March	72,500	85,000	160,000	225,000	5,500	18,500	25,000	26,500
	April	72,500	87,500	175,000	250,000	5,500	15,000	25,000	26,500
	May	72,500	90,000	200,000	275,000	5,500	12,500	25,000	26,500
	June	72,500	95,000	217,500	300,000	5,500	12,500	25,000	26,500
	July	72,500	107,500	260,000	300,000	5,000	12,500	18,500	24,000
	August	80,000	107,500	285,000	300,000	4,750	12,000	17,000	22,500
	September	80,000	105,000	272,500	300,000	5,750	11,500	16,000	25,000
	October	81,500	105,000	272,500	305,000	5,750	11,500	15,000	25,000
	November	81,500	107,500	265,000	320,000	6,500	11,500	15,000	25,000
	December	83,000	109,000	275,000	332,500	7,000	12,500	16,500	26,000
2012	January	83,000	107,500	275,000	340,000	7,000	12,500	16,500	26,500
	February	83,000	117,500	285,000	320,000	7,000	12,500	15,750	26,500
	March	83,000	117,500	300,000	320,000	7,000	13,000	15,750	26,500
	April	83,000	120,000	305,000	325,000	7,000	13,000	15,750	26,500
	May	83,000	120,000	300,000	325,000	7,000	13,000	15,750	26,500
	June	83,000	122,500	305,000	315,000	7,000	13,000	15,750	26,500
	July	83,000	122,500	305,000	300,000	7,000	13,000	15,750	26,500
	August	82,500	122,500	305,000	300,000	7,000	13,000	15,750	26,500
	September	85,000	130,000	305,000	315,000	7,250	13,500	16,500	26,000

				Ammunition			
9 × 18 mm	7.62 × 39 mm	5.45 × 39 mm	5.56 × 45 mm	Locally manufactured 9 × 18 mm	Locally manufactured 7.62 × 39 mm	Locally manufactured 5.45 × 39 mm	Locally manufactured 5.56 × 45 mm
n/a	48	123	34	n/a	19	28	20
34	48	123	34	19	19	28	20
37	48	123	27	19	19	28	15
37	48	123	25	19	19	28	14
37	48	113	25	19	19	28	14
49	48	118	27	13	16	28	14
50	50	120	29	17	19	25	16
50	54	120	29	17	19	25	16
50	55	120	31	18	19	25	19
55	55	125	32	18	19	25	19
57	56	125	32	19	20	26	20
57	56	130	32	19	20	26	19
60	58	130	31	19	20	25	18
60	63	140	31	19	20	25	18
60	63	150	31	19	20	25	18
60	63	155	31	19	20	25	18
60	63	150	28	19	20	25	17
60	64	150	30	19	20	25	17
60	64	150	30	19	20	25	17
60	64	150	33	19	20	25	17

Somalia prices (per unit, in USD)

Year	Month	Weapons				Ammunition			
		Makarov	7.62 × 39 mm Kalashnikov variants	PKM	DShK	9 × 18 mm	7.62 × 39 mm	7.62 × 54R mm	12.7 × 108 mm
2011	February	n/a	400	6,000	4,250	n/a	0.32	0.40	0.40
	March	n/a	415	6,250	5,050	n/a	0.41	0.49	0.41
	April	n/a	425	5,750	6,000	n/a	0.44	0.53	0.40
	May	n/a	475	5,750	6,000	n/a	0.49	0.58	0.45
	June	n/a	490	5,750	5,500	n/a	0.52	0.63	0.50
	July	n/a	450	5,200	5,000	n/a	0.47	0.53	0.44
	August	n/a	600	6,500	5,750	n/a	0.56	0.65	0.52
	September	n/a	600	6,500	5,750	n/a	0.58	0.66	0.52
	October	1,150	550	7,250	9,000	2.50	0.65	0.60	0.53
	November	1,150	675	7,750	10,000	2.50	0.65	0.60	0.50
	December	1,425	900	7,500	10,250	3.00	0.67	0.60	0.50
2012	January	1,400	925	7,250	9,750	2.75	0.63	0.58	0.50
	February	1,825	925	7,250	9,700	2.50	0.63	0.58	0.50
	March	1,825	975	7,350	9,700	2.50	0.68	0.80	0.55
	April	1,900	975	7,350	9,700	2.50	0.68	0.80	0.53
	May	1,900	975	7,350	9,700	2.50	0.68	0.90	0.53
	June	1,900	965	7,350	9,700	2.75	0.65	0.90	0.50
	July	1,900	965	7,350	9,700	2.75	0.63	0.85	0.50
	August	1,900	965	7,350	9,700	2.75	0.63	0.85	0.50
	September	1,900	965	7,350	9,700	2.75	0.63	0.85	0.50

Puntland prices (per unit, in USD)

Year	Month	Weapons		Ammunition	
		7.62 × 39 mm Kalashnikov variants	FN FAL variants	7.62 × 39 mm	7.62 × 51 mm
2011	October	600	465	0.75	1.25
	November	700	475	0.80	1.25
	December	650	500	0.80	1.30
2012	January	650	500	0.80	1.30
	February	725	500	0.80	1.25
	March	725	500	0.80	1.25
	April	725	500	0.80	1.25

Somaliland prices (per unit, in USD)

Year	Month	Weapons		Ammunition	
		7.62 × 39 mm Kalashnikov variants	FN FAL variants	7.62 × 39 mm	7.62 × 51 mm
2011	October	625	600	1.00	0.50
	November	625	600	1.00	1.00
	December	700	650	1.00	1.00
2012	January	660	650	1.00	1.00
	February	700	720	1.00	1.00
	March	700	850	1.00	1.00
	April	670	700	1.00	1.00
	May	670	650	1.00	1.00
	June	690	670	1.00	1.00
	July	700	680	1.20	1.20
	August	675	650	1.00	1.00
	September	710	700	1.00	1.00

LIST OF ABBREVIATIONS

AMISOM	African Union Mission in Somalia
CV	Coefficient of variation
FATA	Federally Administered Tribal Areas
KPK	Khyber Pakhtunkhwa
PKR	Pakistani rupee
TFG	Transitional Federal Government of Somalia
USD	United States dollar

ENDNOTES

1   The demand side of the model was adapted from Brauer and Muggah (2006).

2   This study used global indices of government effectiveness and democratic accountability to measure governments' regulations generally and, by extension, their ability to implement small arms control legislation (Killicoat, 2007, pp. 264, 266).

3   See, for instance, Chivers (2012a); Jenzen-Jones (2013); and Wepundi et al. (2012, p. 59).

4   See Chivers (2012a); Florquin and Pézard (2005, pp. 54–55); Greene (2006, p. 3); Spleeters (2012b).

5   See Blanford (2011); Ibrahim (2008); Prothero (2010); and Qassem (2012).

6   For a documentary on the Darra arms market, see Vice (2009).

7   From November 2011, the project began collecting prices in Burao, Somaliland. In Puntland, data was also gathered over several months. Unless indicated otherwise, Somali prices in this chapter refer solely to data collected in Mogadishu, however.

8   See SATP (2012).

9   See, for instance, Alami (2011) and Qassem (2012).

10 Only four reports were received during that period, providing price averages for late February–early March, late March–early April, late May–early June, and September 2012.

11 See also Chivers (2010, p. 383).

12 Confidential author correspondence with data collectors, September 2012.

13 Confidential author correspondence with a data collector, December 2012.

14 The coefficient of variation in this case is the standard deviation (from the average price) divided by the average price.

15 In Pakistan, for instance, the typical monthly price range for 5.45 × 39 mm ammunition stayed within one per cent of its average price. In contrast, the price range for the AK-74 rifle (chambered for 5.45 × 39 mm ammunition) reached eight per cent beyond its average value. Confidential author correspondence with data collectors, February 2011–September 2012.

16 A standardized Z score indicates by how many standard deviations an observation is above or below the average. Indices take into account the price values of all the weapons and ammunition listed in Table 11.1, with the exception of the Makarov pistol and associated 9 × 18 mm cartridge in Somalia, for which data was incomplete (covering only 12 months). For Pakistan, different indices were calculated to distinguish the prices of factory-made arms and ammunition from those of locally crafted materiel.

17 See, for instance, Chivers (2012a); Florquin and Pézard (2005, pp. 54–55); Spleeters (2012b).

18 Author correspondence with Damien Spleeters, freelance journalist, November 2012.

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